TACTILE GRAPHICS 2008

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CONFERENCE REPORT

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by John Blake ⠃⠽ ⠚⠕⠓⠝ ⠠⠃⠇⠁⠅⠑

TACTILE GRAPHICS 2008 - CONFERENCE REPORT.

FIRST SESSION
Tactile and large print London Underground station plans: design and evaluation.

Sarah Morley Wilkins (Principal Manager) introduced the topic, and announced that the main presenters would be Alan Waller (Senior Tactile Graphic Designer) responsible for the design of the London Underground maps, and Sarah Home (Accessible Information Development Officer) responsible for Evaluation of the project.

Alan Waller.
1. Design.
The Pilot Project was based on Euston and Paddington Station Accessible plans with 'Describe on-line' which was undertaken in 2004. The aim was to look at pre-journey planning using accessible plans and on-line descriptions. Research undertaken included user requirements, user testing and approaching the project with a holistic approach.
In 2005 the RNIB was given a contract from London Underground for a pilot for 3 Tube Stations: Old Street, Earl's Court, and Westminster.

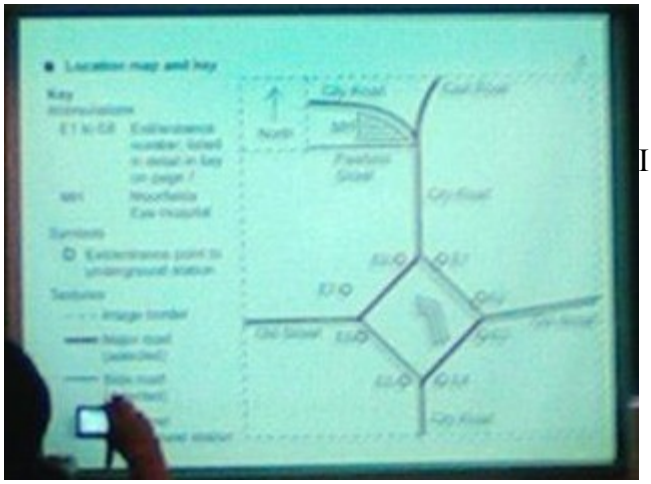
Iterative Design; user feedback and site visits.

- Goal - Spatial awareness and relation; not designed to replace LU (London Underground) staff but to work with them.

- Blueprints - starting point. E.g., platform 3 comprised of 3 x A3 *.pdf's which had to be shrunk down into one B4 sheet. The original blueprints were complex 3d isometric view plans.
- Consistent pack layout - all stations would require the same.

Simple design - Red and Blue taken from the LU logo; Red covered plans for tactile maps, Blue for large print.

Old Street was a particularly difficult stations as it has 8 entrances as it is based on a roundabout which turned into being called a 'square-about' .



In respect of the cross-section plans showing the escalators to the various platforms, a sighted person made the comment that they could now understand for the first time, the layout of the underground station.

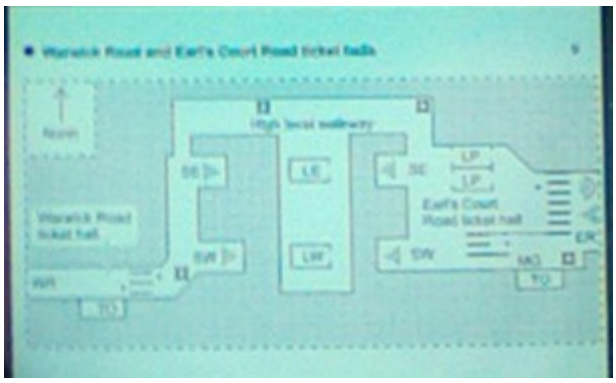
The primary function was to treat the plans as a ROUTE and NOT a building, with elements within it such as the location of the Ticket Office.
Squiggle lines was a new symbol that Alan had put into the design, indicating a spiral staircase.

There was a need to design symbols that were informative as shown below:

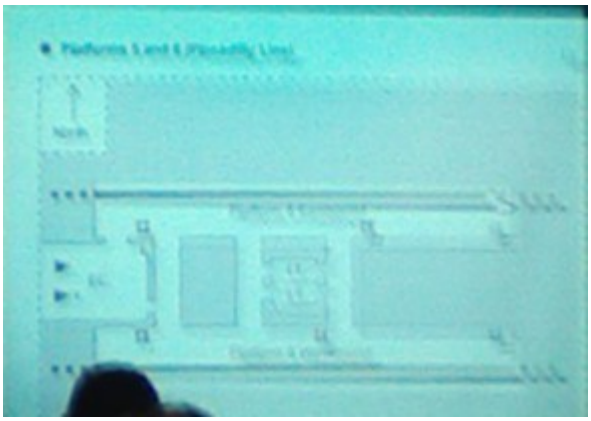
= steps - widest bar equals top of stairs

= ramps – widest bar equals top of ramp

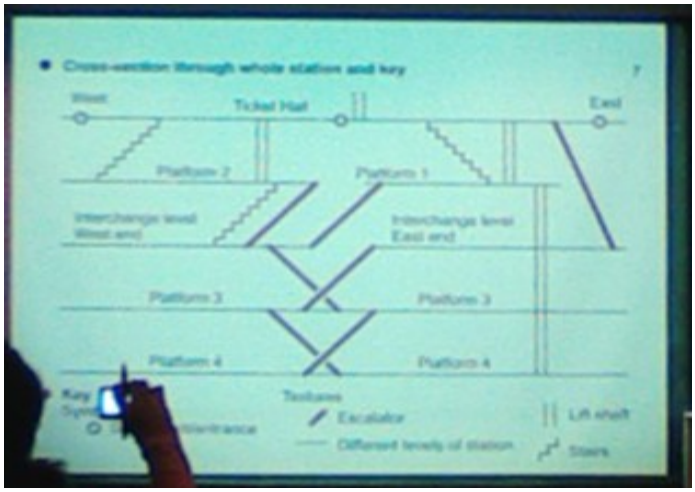
= barriers – entrance/exit

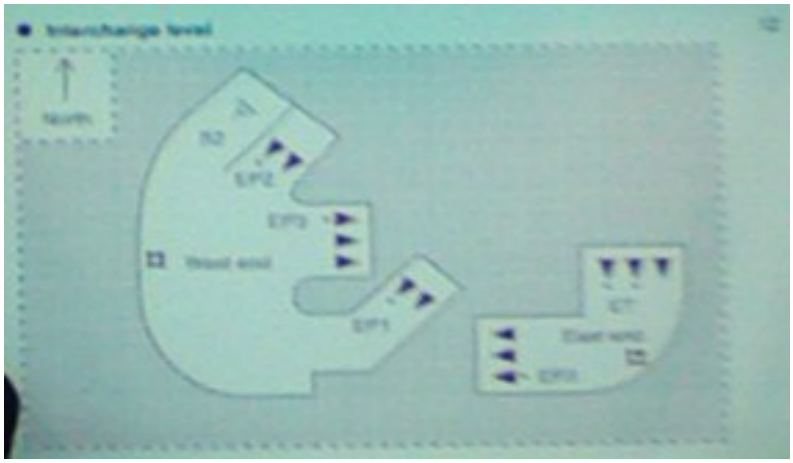


Plans show concourses and platforms.
The three dashes at either end of the track line indicate that the track proceeds into a tunnel.



The symbols used in the Braille and Large Print Copy are identical in respect of the Lifts (LT) but the scale is distorted in the Braille copy to facilitate the Braille characters. It was decided early on with regards to labelling to KEEP SIMPLE.





Sarah Morley Wilkins

FEEDBACK.

Generally the response was great in respect of the spatial awareness – it worked.

Describe On-Line is different to the images provided in the plans but it complements it.

The plans are available to anyone at the following places:

1. Reference copies; kept at stations themselves so that people can sit down and study for half-an-hour before making their journey.
2. London RNIB resource.
3. Borrow from the Braille Library.
4. To keep – order from LU.

SUPPORT.

This was crucial for the take up to be a success; RNIB provided training to LU staff – not just those offering front-line assistance to VI users but also those members of staff answering the telephones in how to ask correctly members of public with a VI.

Training also included how to store the plans correctly and how to post them using the cecogrammes provided to ensure timely delivery to those who had requested them.

Support was also provided in the production of post cards and contact cards.

There was a major advertising campaign, primarily geared at users, both disability and mainstream, to be aware of the information over a 6 month trial period.

Sarah Home

EVALUATION

The main purpose of the evaluation was to discover had the exercise worked? Analysis of users was spread over 41 people, 23 of which participated in a survey; needed usage figures. 11 people participated in an in-depth and extensive survey out of the 23. Take up was primarily based on travel needs, with Westminster being the most complicated.
Most of the Plans used were those provided by LU; very little from the Library. The heaviest response was from people who used the LU heavily, and primarily therefore, people who lived and worked in the centre of London who wanted greater independence in travelling on the LU.

They also discovered that less frequent users were more prepared to use the Underground; plans were studied beforehand; most useful when travelling alone.

The request that came out of the survey most frequently was to include bus stops for the next stage – King's Cross, St.Pancras, Victoria, and London Bridge.

One of the other comments made by respondents was the desire for the train information audio to be left on; for some unknown reason, train drivers were in the habit of switching this off.

All who completed the in-depth survey were generally very satisfied with the service apart from one lady who was disappointed as she had expected the whole network to have been included – bearing in mind the work done so far had taken 4 years to complete.

Overall plans had given much more confidence in travelling independently. There are now 800 people working on the remainder of the LU network in readiness for 2012.
The main object of the exercise had been fulfilled – pre-journey planning.

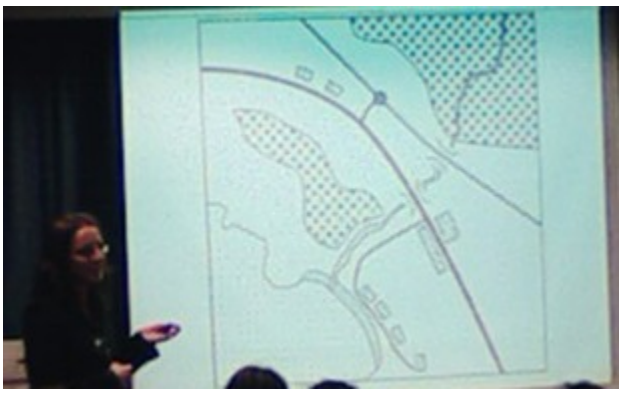
There was then a brief question and answer session.
Alan Waller had pointed out that for a visual impaired person there was very little difference between a circle with a space in it and a square with a space in it which had come to light during the exercise.

The main content of the session (all the sessions I think!) are to be posted on the Tactile Graphics 2008 website.

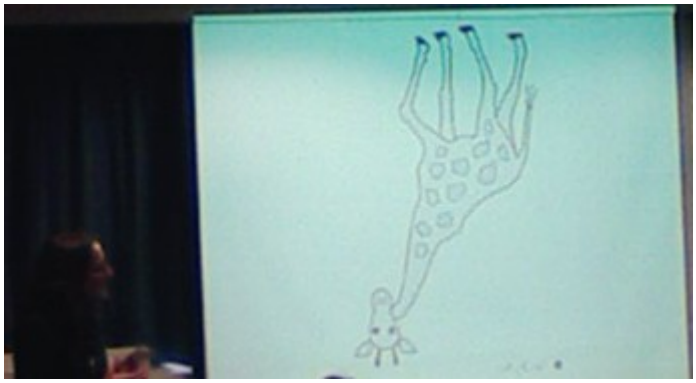
SECOND SESSION
Exploring tactile graphics – which strategies work?
Heather Cryer (Research Officer, RNIB, Centre for Accessible Information, UK).

Heather began by posing the question: How do graphics differ?

- Orientation: A map, even if it is held upside down, still has the same information.



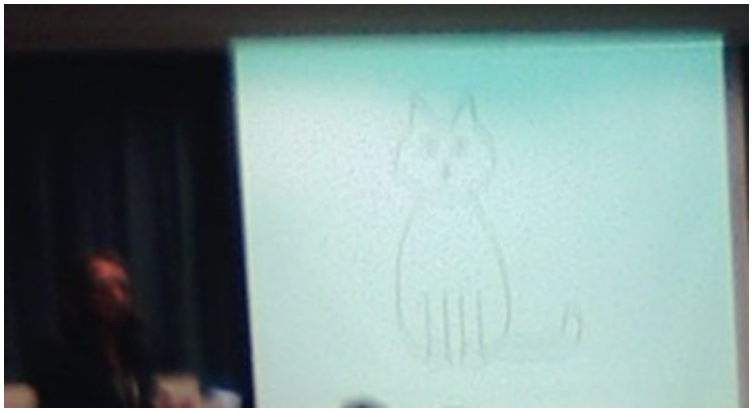
It cannot be said to be the same if
a tactile drawing of a giraffe is presented upside down.



- Spatial relationships are the key to good graphics.

- Symbols offer another aid: reference was made to the LU plans and gave the example of an upside down triangles represented escalators.

- Sarah then projected a simple picture of a cat, sitting down, facing the audience with its forelegs straight, paws facing toward the viewer.



- The comment was made that whilst we could easily recognise what the picture was of, a VI person would have no concept of it being a cat as it was not related to a blind person's experience of a cat.
- Focus was made on practical approach and how people explore tactile diagrams. A lot of the research papers she had studied were 20 years old or more – but what they contained was still relevant today. Basically there were two approaches: some people were left to explore a tactile diagram unaided, while others experienced a 'contrived' method i.e., they were taught the task of exploring a tactile diagram.

EXPLORING – which strategies work?

Conducting an initial scan of the picture using both hands to explore.

Overall size/shape.

Reference/distinctive.

Textures

Graph – Simple.

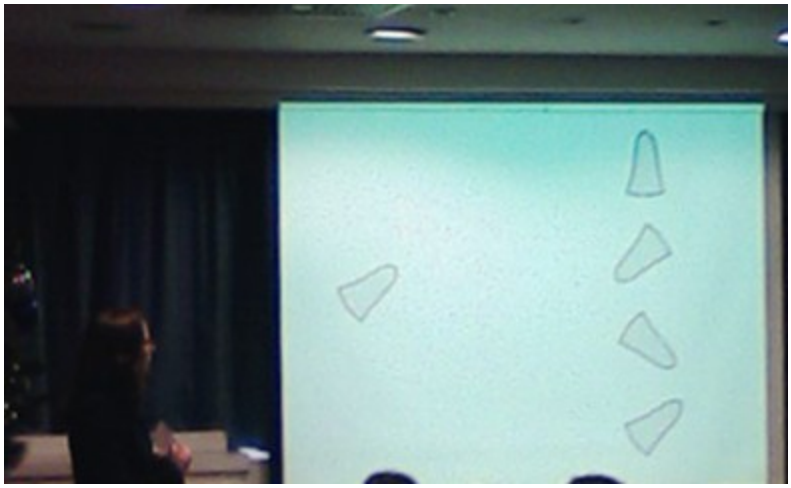
All these elements may help build up overview of what looking at.

Systematic approach needed.

Matching picture recognition.

Identifying matching objects was poor if the diagrams were traced in different directions. Better results were obtained if the tactile diagrams were traced in the same direction.

ROTATION DIAGRAMS.



Again, if systematic approach used in reading the diagrams they could be matched better.

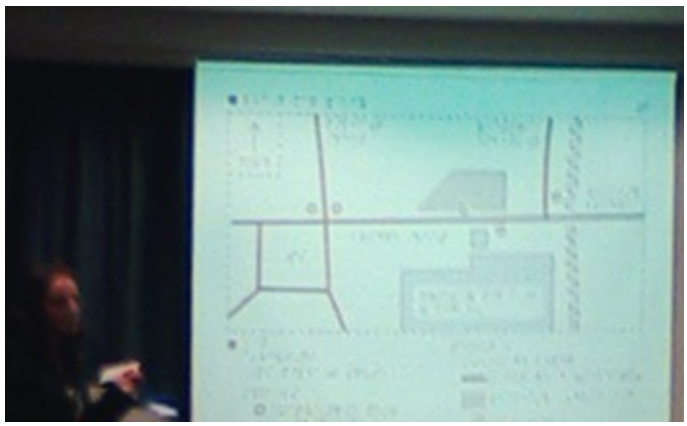
Exploring whole display.
Map – can be explored either horizontally or vertically.
– either one or two hands; one on edge as reference point.

First three fingers – trailing; vertical most effective as greater area covered, helps organise incoming information.

Strategies used may be different; for example, the plan/picture of a house would lead to all areas being traced, compared to a shape – a feature would be noted.

LINE TRACING AND DISTINCTIVE FEATURE ANALYSIS.

- Systematic – focus on graphic.
- Routes
- Line on Graph
- Distinct feature



- Useful for many types of graphics/ maps.

- Focus on spatial relationships.
- CRUCIAL – elements on map; data on graphs.

- Position of elements
- PATTERNS – Position of elements within graphic.
- Help users build global impression.
- Relates to sighted users – how study.
- Sighted – more accurate.
- Some VI – just as good.
  Same strategies as sighted.

  Further research required.
- Using frames of reference
- Anchor information
  - 2 types:
  - Body centred – picture relative to own body; graph – finger on data, interested – other data.
    Recognising orientation to body.
  - External – edge of paper/graphic.
    Top Corner
    Parallel to edges

  Helps incoming and organising spatial information.

CONCLUSION.

Body centred and external referencing most useful.

- Remember landmarks
- Body *
- External
- Both **
- neither

(** = most effective)

COMMON THEMES

1. SYSTEMATIC
2. Serial linear input.
3. Building impression as a whole.

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1. Initial scan.
2. Being systematic – touch all; explore particular/distinctive features.
3. Spatial relationship.

DEVELOPMENT

Training materials – Heather.Cryer@rnib.org.uk.

At end of the session there was a brief question and answer session, with a notable contribution from Suzanne Van Den Bercken from the Netherlands who undertook some research that found that 96% or respondents said that they would prefer to be trained in the correct methods of reading tactile diagrams.
Another comment made was that one way of making training interesting would be to use graphics that relate to a particular subject of interest of the person learning.
(Later at lunch time, I caught up with Suzanne in conversation with Mike Townsend, (Chair of Access and Innovation Group Committee) She has set up a correspondence course by e-mail that has helped people with a VI improve their abilities in reading tactile diagrams. With an average of 40 marks at the start of the course, most had improved to 50 marks. Mikes comment said that there appeared to be a long way to go. Suzanne explained that 60 marks was the ultimate mark! So it would indicate that the correspondence course she is running appears to work).

THIRD SESSION.
GraSSML: a new approach for Accessible Web Graphics for All
Zaineb Ben Fredj (PhD Student, Oxford Brookes University, UK)

GraSSML: Accessible Smart Schematic Diagrams for All
Zaineb Ben Fredj and David Duce
Department of Computing
Oxford Brookes University, UK
zbenfredj@brookes.ac.uk
daduce@brookes.ac.uk

MOTIVATIONS

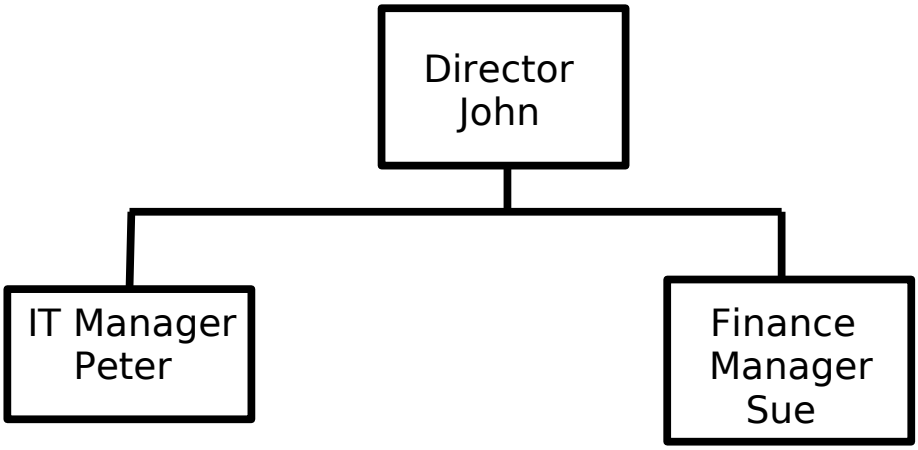
- Diagrams are a powerful way of conveying information
  "A diagram is worth a thousand words"
- Widely used on the web
- Have made life much easier for "most" users
- Except for users with specific disabilities or users who work in environments where graphical representations are inappropriate (e.g. screen size, text only display)

The problem

- Despite new web standards, the state of graphics on the web remains limited
- The web is still suffering from a lack of techniques to represent, generate, manipulate, adapt and access its diagrammatic content.
- Although a great deal of work has been done to address the accessibility problem of graphics, some limitations remain.

Our approach

A simple example



Do you see
what I
mean?

Let's start with
what I mean
instead of
what you see !
Generate "what you are going to see"

[The audience was asked to comment; those that spoke saw an organisation chart – it is in fact a family tree with the jobs of the father at the top and brother and sister are siblings of John! - semantics!] Basically, we can readily see relationships based on the type of diagram being displayed; someone with a visual impairment will not readily see all the indirect relationships the above diagram holds, but GraSSML would be able to show these relationships as given in the somewhat stuttered demonstration; in addition to the audio feedback connection lines also changed colour/highlighted.

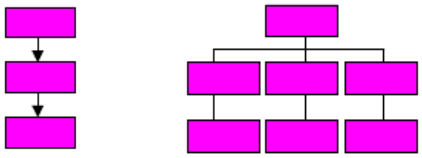
Our approach

Graphical Structure Semantic Markup Languages (GraSSML) aims at:

- facilitating the creation, modification and adaptation of diagrams
- making the information "behind" the diagram "part" of the diagram
- make the semantics of the diagram machine-accessible
- exploring this information to generate alternative representations improving the accessibility of diagrams.

Syntax and semantics of diagrams

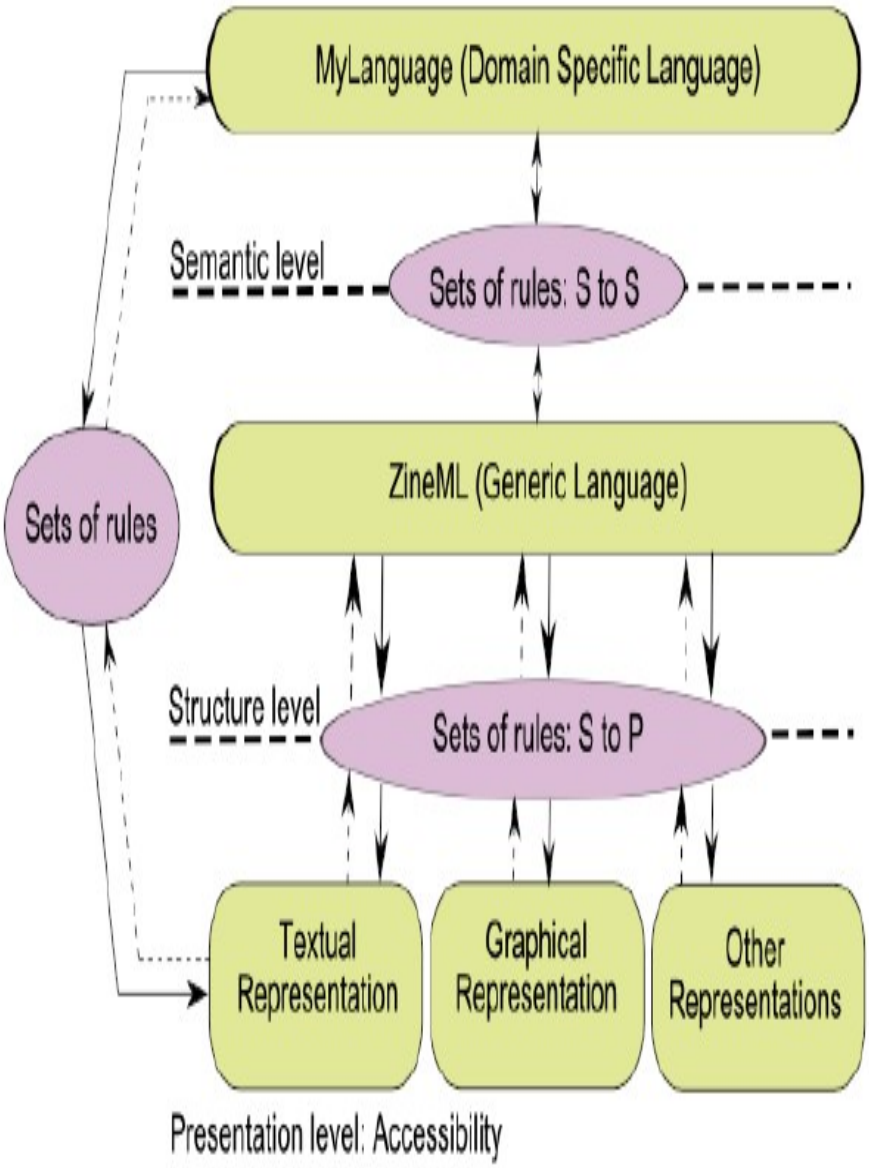
- Very large variety of diagrammatic notations and no universal visual conventions
- Start with well defined set of diagrams
  - Identify some classes of diagrams



Process Hierarchical

  - Identify domains with well defined conventions: syntax and semantic rules

GraSSML Family of Languages



GraSSML Family of Languages: Semantic Level Example (Org_Hierarchy)

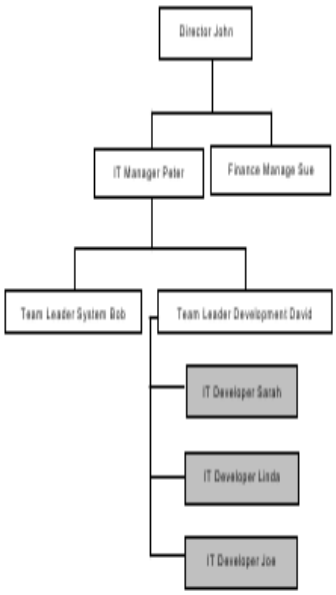
- Study of the domain and the class: "Organisation chart, hierarchical diagrams"
  - **Concepts**: Employee, Director, Manager, It Manager, Finance Manager, Team Leader, Team Leader System, Team Leader Development, It Developer.
  - **Properties**: manages, reports to, name
- Results of the study:
  - The ontology OrgChart_Ontology (link to the ontology)
  - DS Markup Language "Org_Hierarchy" of type hierarchical diagram.

```
<Org_Hierarchy author="Z BEN FREDJ" date="February 2005" title="Organisation chart of my business">
    <Director id="D_John" name="John">
        <It_Manager id="Itm_Peter" name="Peter">
            <TeamLeader_System id="Tls_Bob" name="Bob"/>
            <TeamLeader_Development id="Tld_David" name="David">
            <It_Developer id="Itd_Sarah" name="Sarah"/>
            <It_Developer id="Itd_Linda" name="Linda"/>
            <It_Developer id="Itd_Joe" name="Joe"/>
            </TeamLeader_Development>
        </It_Manager>
        <Finance_Manager id="Fm_Sue" name="Sue"/>
    </Director>
</Org_Hierarchy>
```

GraSSML Family of Languages:
Structure Level: ZineML Example

```
<ZineML type="hierarchical" title="Organisation Chart of my business">
<box> Director John
    <box> IT Manager Peter
            <box> Team Leader System Bob</box>
            <box> Team Leader Development David
                    <box>IT Developer Sarah</box>
                    <box>IT Developer Linda</box>
                    <box>IT Developer Joe</box>
            </box>
    </box>
    <box> Finance Manager Sue </box>
</box>
</ZineML>
```

```
<ZineML type="hierarchical" title="Organisation Chart of my business">
<box> Director John
    <box> IT Manager Peter
            <box>Team Leader System Bob</box>
            <box> Team Leader Development David
                    <down> <box>IT Developer Sarah</box>
                    <box>IT Developer Linda</box>
                    <box>IT Developer Joe</box> </down>
            </box>
    </box>
<box> Finance Manager Sue </box>
</box>
</ZineML>
```



GraSSML Family of Languages:
Presentation Level (e.g. SVG, XHTML)

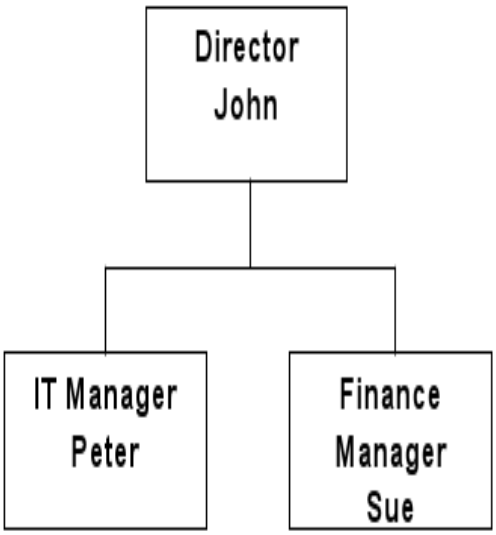
- Possible Alternative representations:
  - Graphical: SVG, possible interactive exploration of the diagram
  - Textual: verbalisation model of the structure and the semantics (XHTML)
  - Query System: query the structure and semantics of the diagram in novel ways.

Related works

"Bottom-up" approaches

- Attempt to infer alternative presentations from one given by an author (BIS, GUIB,TeDUB)
  - Advantages: presentation and navigation of the graphical information
  - Limitations: human intervention, important responsibility for the human involved, possibility of incomplete results

Do you see what I mean?



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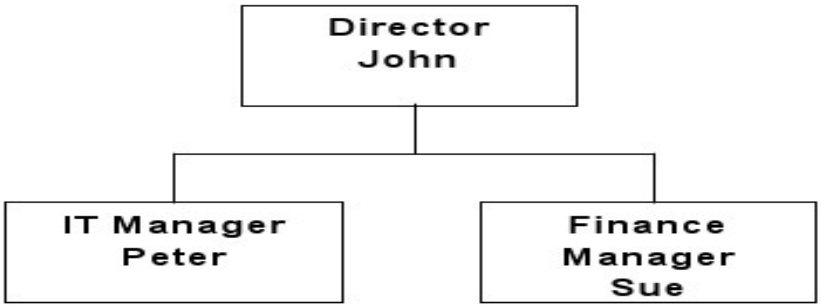
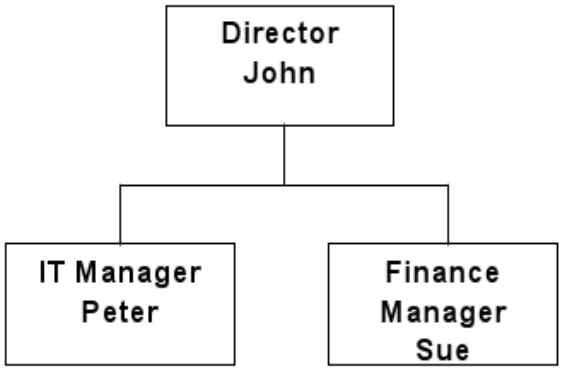
SVG



"Bottom-up" approaches

- Attempt to embed information into SVG file to overcome some of SVG's limitations (CSVG, ViewPlus, Linearizer tool)
  - Advantages: explore the information behind the diagram, address some of SVG's limitations successfully, permits a more flexible description of figures
  - Limitations: need too much efforts, tedious, time consuming, captures diagrams at the same low level as SVG

Do you see what I mean?



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Conclusion

Start with the meaning
instead of the
marks on the screen

- GraSSML aims at defining higher-level diagram description languages which capture the structure and the semantics of a diagram and enable the generation of presentations in different modalities
- We address some issues which may have an important impact as an approach to the development of the accessibility of diagrams on the Web.
- "bottom-up" approaches offer many advantages but present some limitations mainly due to the lack of information "behind the diagram"
- Not suggesting that one should pursue only one approach
  BUT exploring our approach could offer great possibilities and clear benefits under certain circumstances

Next steps

- Finalise the implementation of GraSSML for the classes of process and hierarchical diagrams
- Implement presentation and navigation tools
- Perform user based experiments to evaluate the usability, accessibility and limitations of the approach
- Consider wider classes of diagrams, with further development and experiments

Extra Slides

SVG

Advantages and accessibility benefits

- scalable, zoomable, searchable
- interoperability, Unicode support, CSS, XSL, DOM, wide tool support…
- "alternative equivalent", style features, animation,…

Limitations

- "final form presentation"
- Difficult at this level to handle the resizing and positioning in a complex diagram
- does not allow flexible readjustment of the layout
- little real scope for generating alternative presentations from the description at this level
- semantics of the diagram only "implicit"

GraSSML Family of Languages:
Structure Level: ZineML

- Aims at representing the structure of a diagram
- Aspire to facilitate the creation and the modification of diagrams (adjust positions and sizes semi-automatically)
- Proposes a set of basic shapes (extendable) for structured diagrams common to different fields
- Human readable
- Graphical representation is done in accordance with user predefined rule sets (Sets of rules S to P)
- Domain independent, but proposes some options to tailor the graphical representation specifically to a domain by expressing and applying rule sets when creating the diagram.
  - E.g. Hierarchy diagram represented from top to bottom

    (Rule sets: tags proposed by ZineML)

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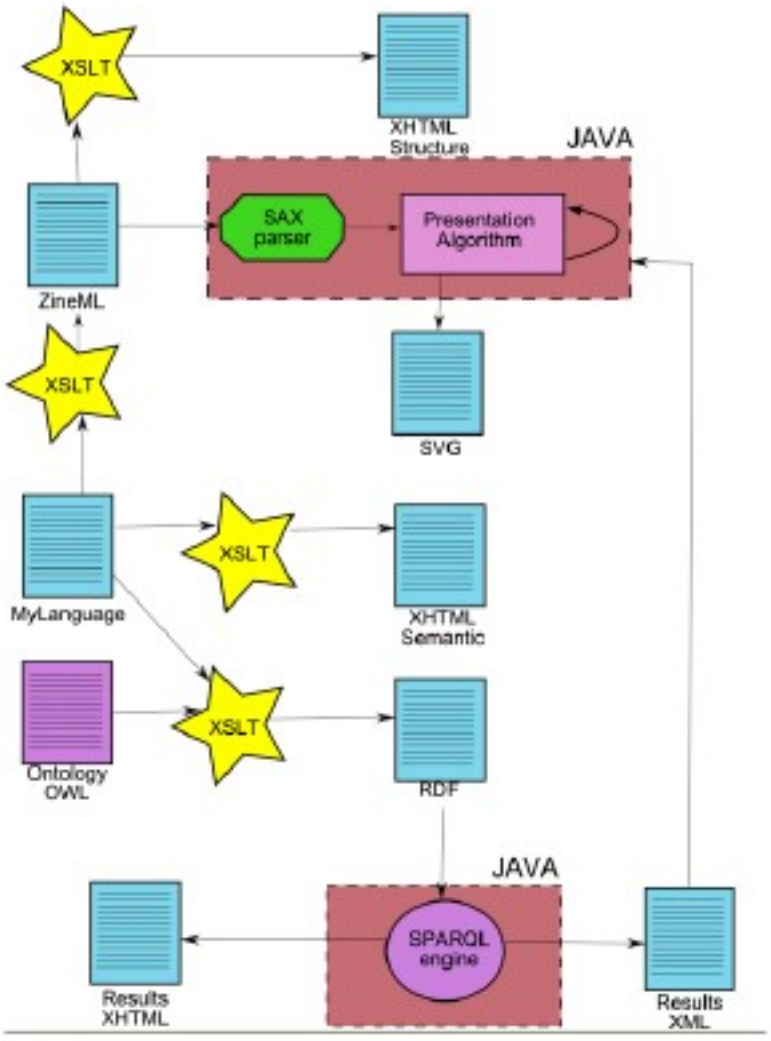
GraSSML Family of Languages:
Semantic Level (MyLanguage)

• XML Language aiming at capturing the semantic intent behind the diagram in a specific domain where clear conventions are followed
• Aims to capture the concepts and relationships between concepts that are to be expressed in pictorial or other representational form
• Aspire to be an intuitive Domain Specific Language
• Does not make any commitment to graphical representation but along with a particular MyLanguage, notational conventions are created (Sets of rules S to S) to govern the generation of a ZineML from MyLanguage

e.g. Director will be represented by a yellow box with his position and name centred

• Process:
  – Study the domain and the class of diagrams in order to identify the concepts and relationships between the concepts the diagrams seek to represent
  – As a result of this study an ontology is created and a particular “MyLanguage” is created
  – Notational conventions defined for the graphical representation

Implementation



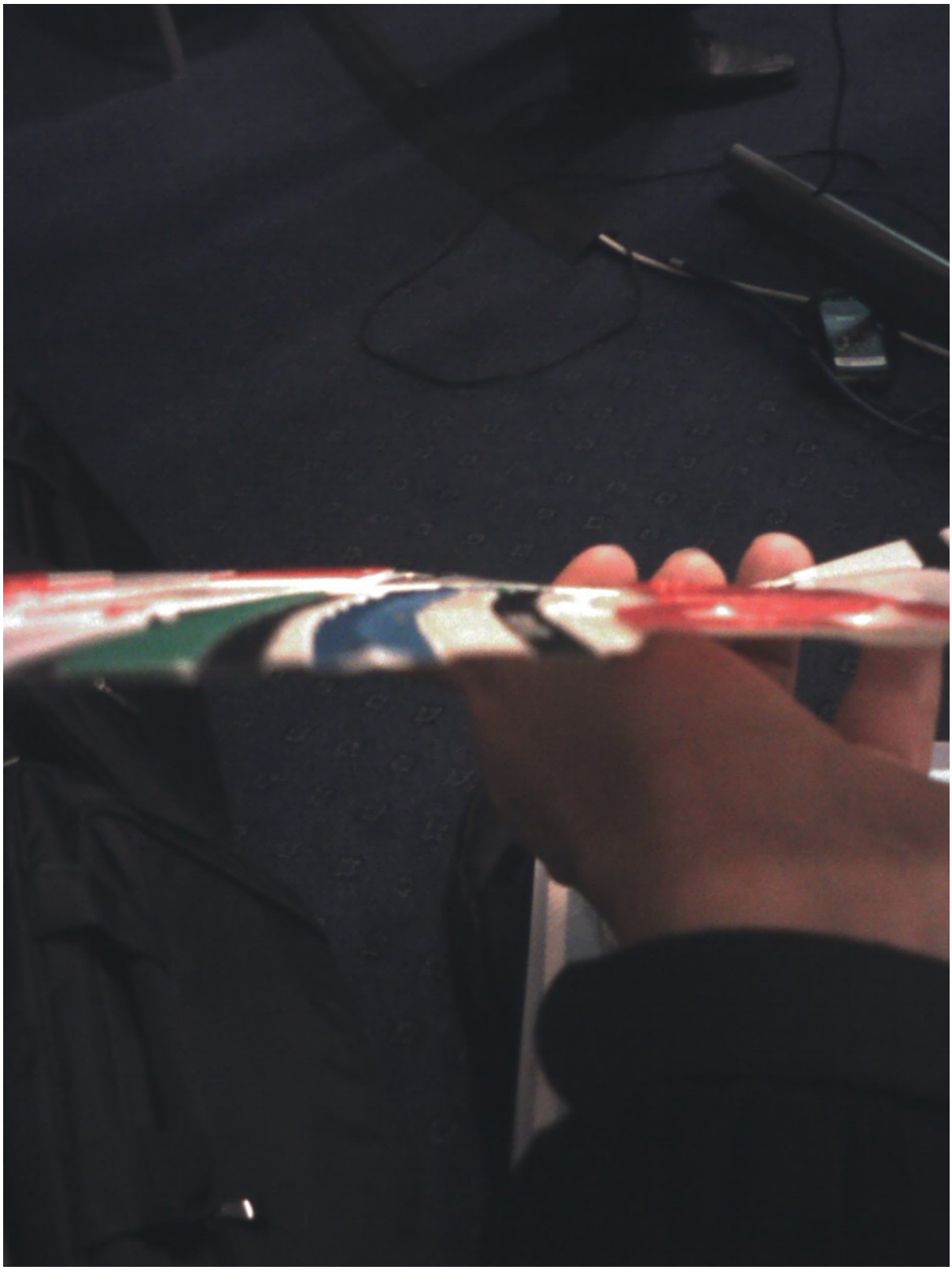
In Layman terms the presenter stated she hoped that in the long-run there will be a computer model that equates to a back pack of semantics that puts everything together. A demonstration was given on the links in an organisation chart in conjunction with Jaws – unfortunately she did not have access to the full software only the development model but it could be seen where the idea was being taken even if the demonstration failed to deliver – the future looks promising. Another viewpoint could be that it is being looked at too deeply.

SESSION FOUR
An automated procedure for production of tactile maps with 3D printing technology.
Roman Rener (Adviser of Director, Geodetic Institute of Slovenia)

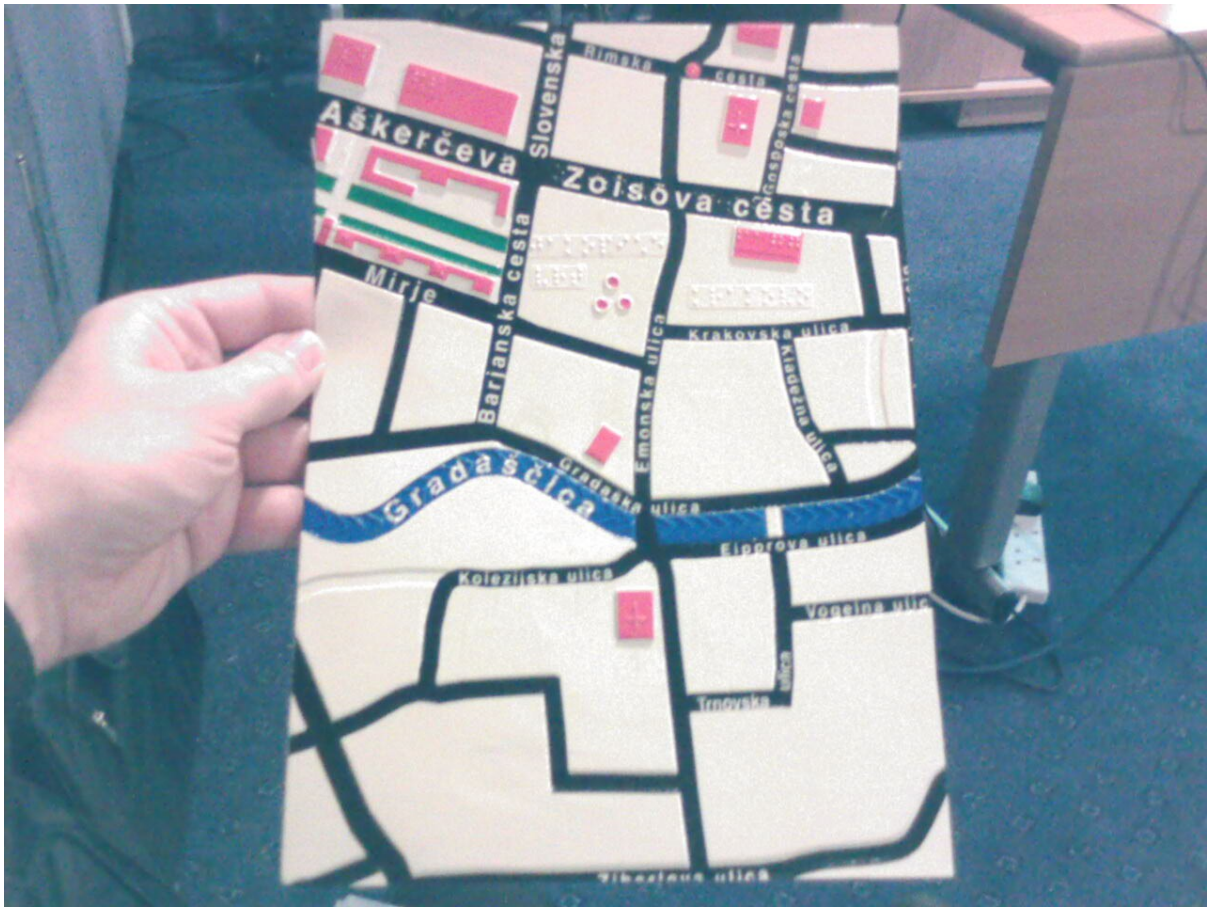
Basically there is a new machine called a 3D printer that produces 3-dimensional maps from 25 mm depth up to 250 mm in depth. The machinery is very expensive (UK equivalent machine is £25,000 and there are issues of chemical storage). Basically, powder is put into the 'printer' (I would prefer to call it 'a computerised mould') and there is no limit as to the variance in colour. The biggest hurdle at the moment is that the models are still very rough, even after chemical applications have been applied to make the 3D maps 'smooth' – the only way this can be achieved is by using the models as a 'template' in a thermoform! (The UK equivalent is interested in having access to a thermoform which he does not have at present.)

Dunajska
cesta
Linhartova
cesta
Krziceva ulica

I particularly liked the rivers as they had a 'v' groove indicating the flow of the river. Overall there is now no longer a limit to the number and variety of shades of colour possible.



Edge view of thermoformed map based on a template produced by a 3D printer.

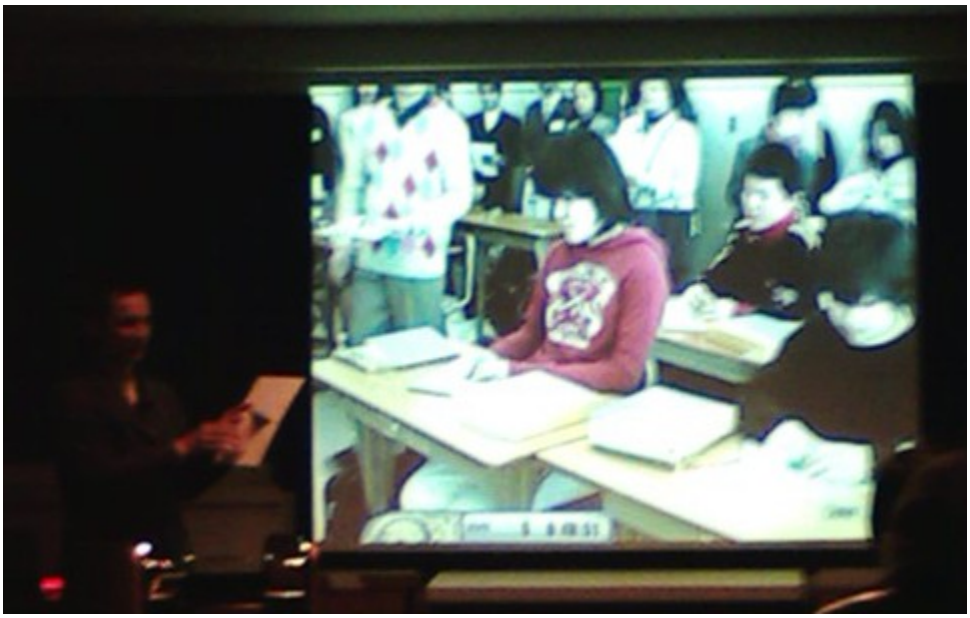

Aškerčeva
Slovenska
Rimska
cesta
Zoisova cesta
Mirje
Barjanska cesta
Krakovska ulica
Gradaščica
Gregorčičeva ulica
Koseznjska ulica
Vegova ulica
Trnovska

SESSION FIVE
TactileView – fast access to tactile diagrams.
Jaap Breider (Owner, TactileView, Netherlands)

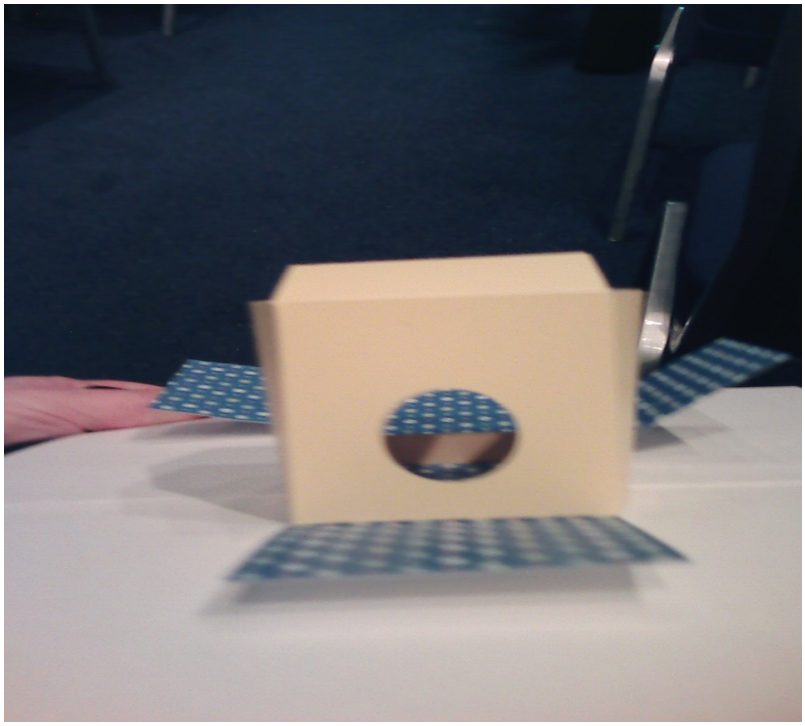
Jaap introduced his software which can access thousands of images in his library and worldwide on the internet. Within seconds a map of Broad Street Birmingham was downloaded and very soon after converted into simple map with Braille indices on the map. If clicked on the information behind the symbol would speak, "Broad Street". In addition to street maps, the software can "construct" graphs based on inputting of data (if you go to http://www.tactileview.com/tvvideo.asp you can view video examples of what the software is capable of doing. Unfortunately, the website is constructed in such a way as no pricing is readily made available. I spoke to Jaap afterword at his display stand; I believe Quantum Technology are to be a distributor of the software. I will check this out before this report is finally submitted.
[I looked at some of the Braille handouts/large print swell paper print outs. I asked him why the numbers did not follow any logical sequence in relation to the diagram, i.e., numbers were not in, say, a clockwise direction. He explained to me that the numbers tied in to alphabetical names of the roads/streets.] What was impressive was the speed at which the maps were transformed.

SESSION SIX
Pop-ups for mathematic education.
Akiyoshi Takamura (Teacher, University of Tsukuba, Japan)

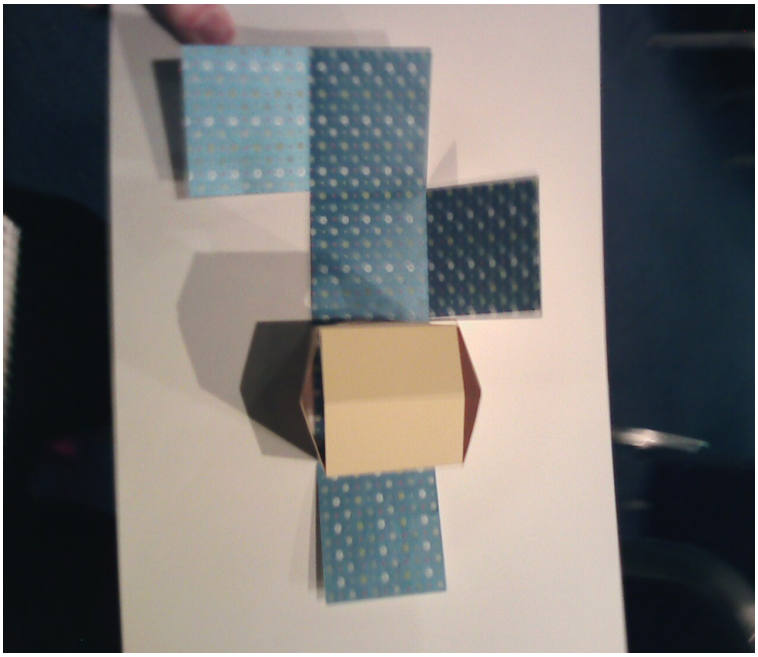
The gentleman (also severely VI) showed a video of him using the models with seventh grade VI pupils in Tokyo.

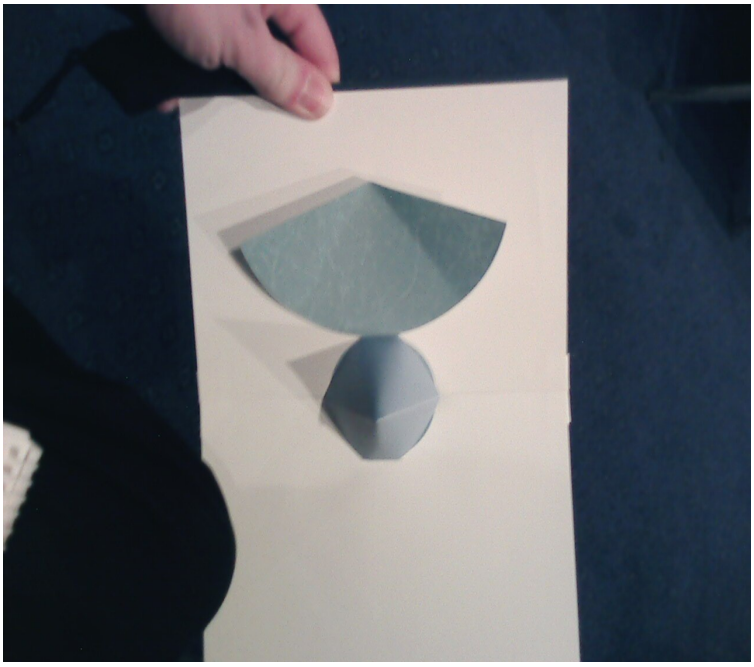


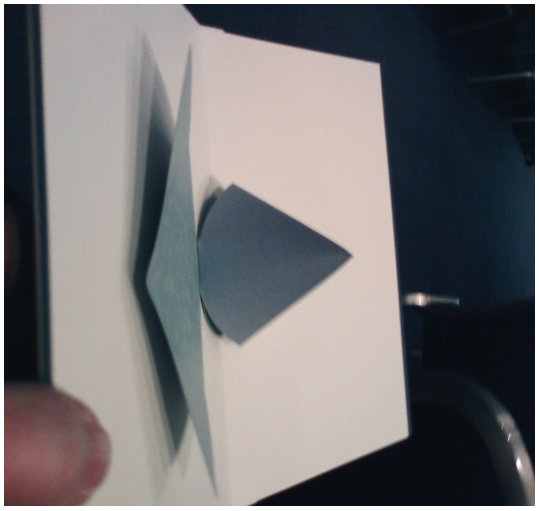
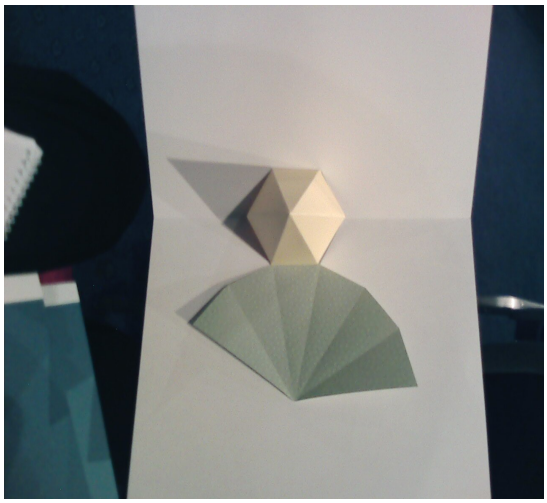
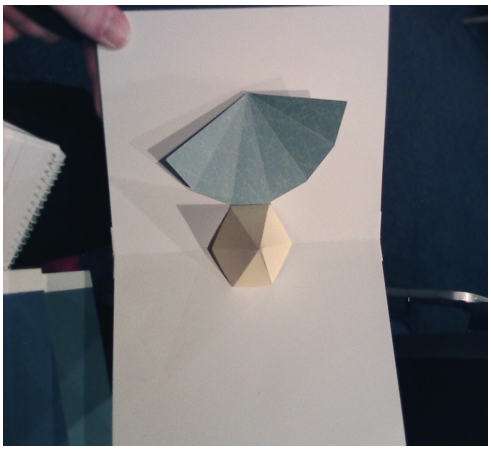
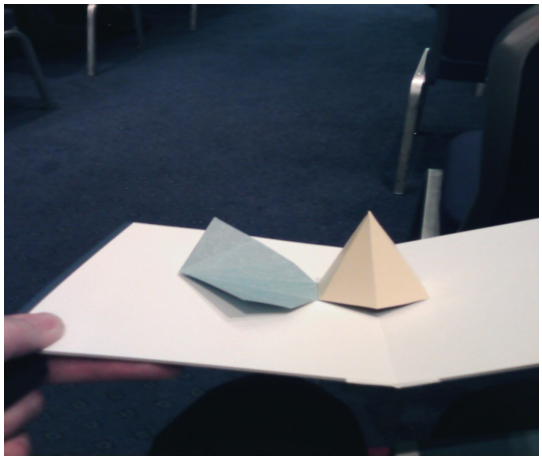
Below are pictures of the models he brought with him. All models are created by a Tz group – volunteers – they cannot be purchased.

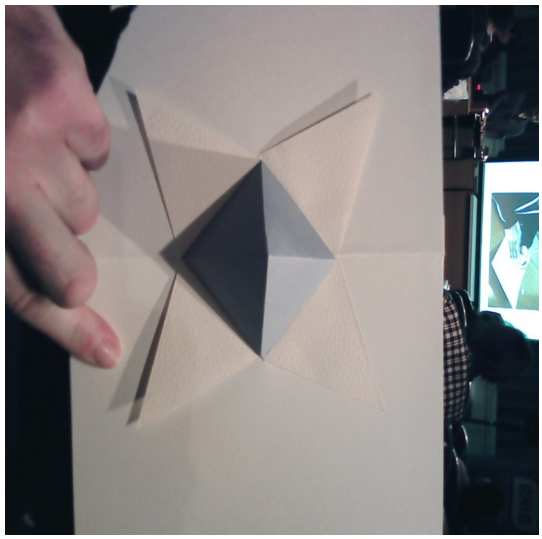


What was so fascinating about these models was the simplicity yet effective way of teaching maths in this method. The openings (a circle on the side shown, a larger square opening on the opposite side) allowed the students to build up a picture of the inside of these objects. The 'net' attached to the base also allowed students to fold the paper over so they got a 'feel' of what the objects they were studying are like, each face being numbered (on the cones shown later).







Unfortunately I did not get my hands on the model that showed a diagonal angle within a cube and as it was the last session the Japanese contingent were in a hurry to get back home.

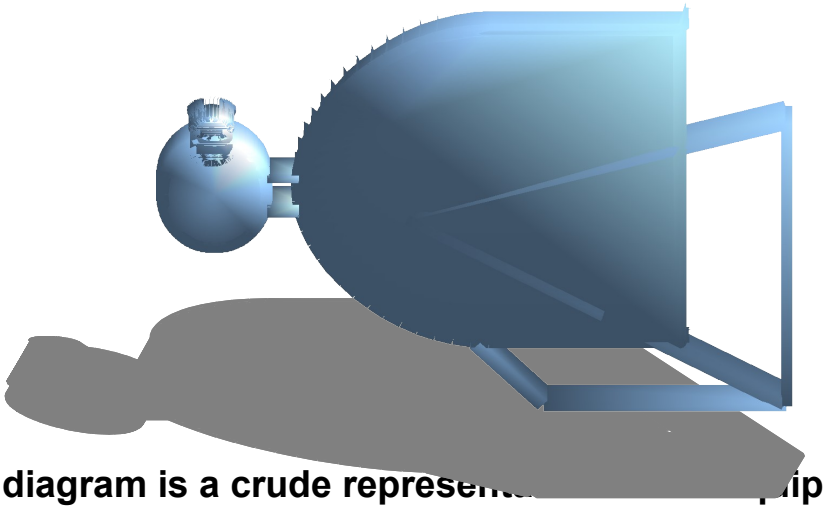
EXHIBITS

RNIB STAND

Braille King – a 4 x15 cell portable Braille note taker – the advantage of this system is that you don't have to Braille in reverse as in traditional Braille frame technologies.
Costs £9.95 ex VAT

A 'new' lightweight Perkins made mostly out of plastic components. I tried this out – its operation is very smooth and pleasing to touch. Note that it has narrow paper – I am not sure how many cells per line it can produce but it had a very nice responsive feel and produced exceptional quality Braille output – a snip at £495!

Movix Stand.
Sadly I forgot to take some pictures of this remarkable piece of hardware/software combination. The function I was interested in was the 'story teller'.



The diagram is a crude represent… …ipment that I tried out. The 'tactile story 'bot' as I would like to call it was connected to an Apple Mac Laptop and was running software which interacted with the 'bot. I was given a professional pair of stereo headphones to wear. I closed my eyes and waited for the fun to start. I gently placed my right hand on the 'control' knob protruding from the front which in actual fact had 3 tiny buttons which were for input use for another application. The story began of a spooky tale with wind whistling through the headphones to set the scene. You are in first person perspective in that you are the central character of the story, a boy whose name escapes me. The story described the character approaching the door to a scary house. The boy knocked on the door three times – the bot pulled my hand back and forth as if knocking on the door. The door swung open – the bot pulled harder and further. Then the door slammed behind the boy – there was a great push against my hand. The boy then started to climb some stairs – the control gently rocked from side to side, imitating the climbing of stairs. Then an apple fell out of the boys haversack and bounced down the stairs where it smashed into something with a loud crash – the 'bot shook my hand vigorously. I was deeply immersed in the story – it actually felt as if you were there – not knowing what to expect next. I did not enquire of the cost but it seemed extremely well thought out from such a relatively young company. Unfortunately there is no evidence of the product on their website, and I expect would be quite expensive; Nonetheless I could see its uses for interacting with a wide audience both mainstream and VI and possibly other areas too.

TGA, Washington University.
This was another interesting exhibit. The gentleman on the stand gave some background information as to the development of the free software. He had been asked at Washington University to make a graph more readily accessible to a VI student. When the person came back, surprised that the work had still not been done, they wanted to know what was taking so long (I could empathise with this experience in respect of time input). A project then began with an undergraduate studying a Ph.D. which led to the student producing some scripts for Adobe Illustrator to undertake the task. Basically an OCR program is used to first scan the image into the computer where it is then placed into Adobe Illustrator and edited with TGA which is freely downloadable. He ran a demonstration of how it worked – data was left-clicked and a red-outline appeared around the key labels. Next a right-click in other areas produced a blue-outline – if any errors were made, an alternate mouse-click would undo any errors on a particular selection. Once completed, the script was run, and voilà – the bar chart was converted with all the Braille labels in the correct place together with Braille reference information. Very impressive. The only downside is the cost of Adobe Illustrator - £485 although Educational cost is £185 (both prices excluding VAT). I downloaded the TGA software to see what it was like – sadly it only appeared to have inches as measurement with no metric equivalent settings, unlike the demo shown at the exhibit – I will make contact and find if this is available.

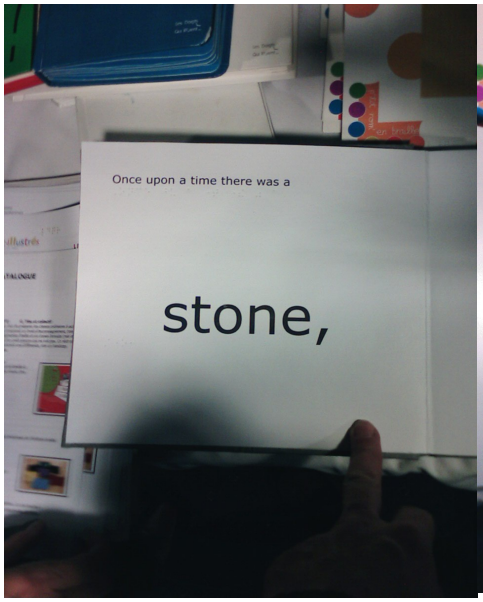
Zychem Ltd.
Phil Eccles, Managing Director, was in attendance, and for me this was the highlight of the day. An exhibitor from Finland took some swell paper and drew a 'facsimile' of her female colleague on the 'fuzzy' side of the swell paper. She then turned the swell paper over and drew a 'beard' on the reverse side. When the swell paper was put through the Zyfuser it raised a white contour – I was told this would swell more each time it was run through the Zyfuser and was very useful for producing landscapes such as having a mountain range and so forth on the diagrams. I also learnt Zychem sell a narrow tip and broad tip pen specifically for the product - £1.25 for the narrow and £1.50 for the broad.

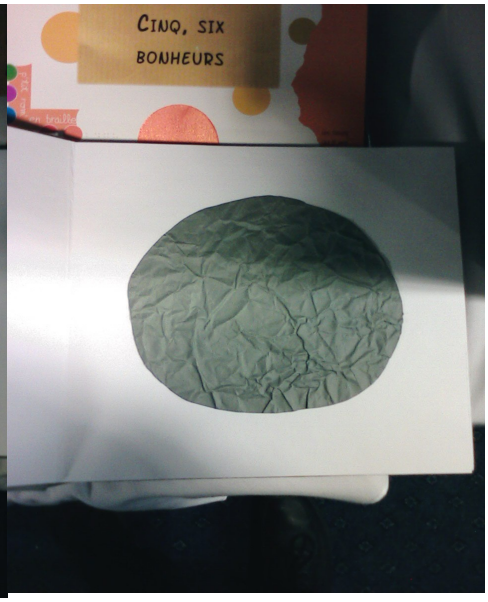
Tactile Books, France.
Philippe Claudet, Director, Les Doigts Qui Rêvent.
Philippe worked on producing a lot of the books on display. He uses special paper that is soaked in water and then a sponge is applied and pressed very hard to get unique textures.
I was particularly taken with a book called 'Heart of Stone' – see the pictures below.

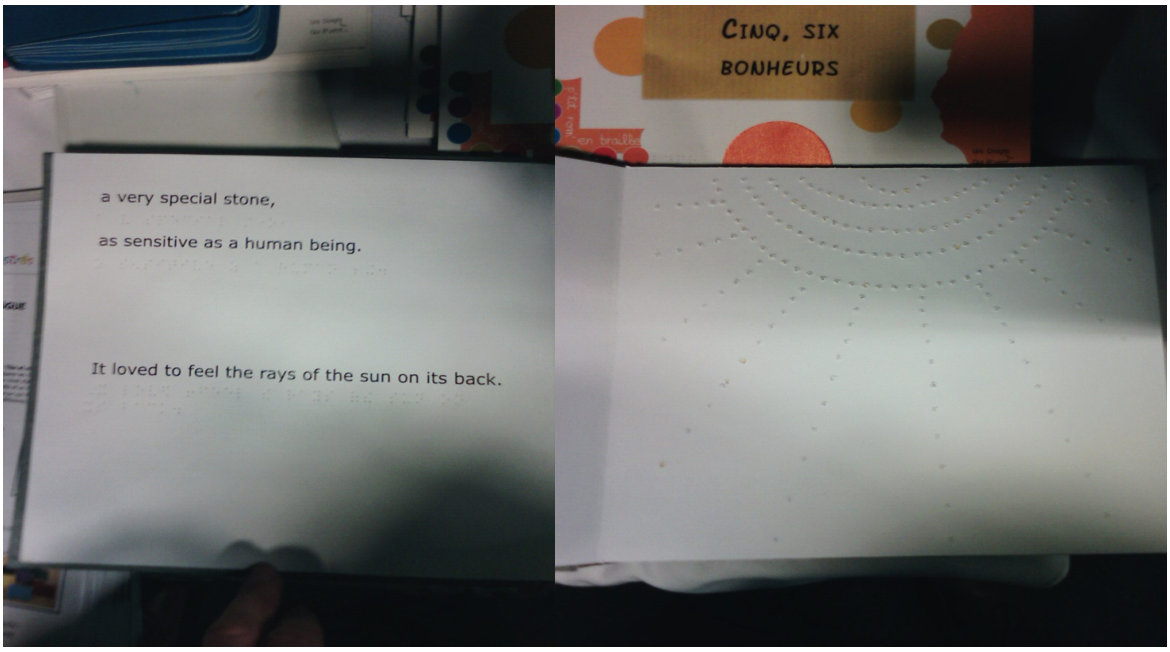
Heart Of Stone by
Mauro L.Evangelista

Once upon a time there was a

stone,



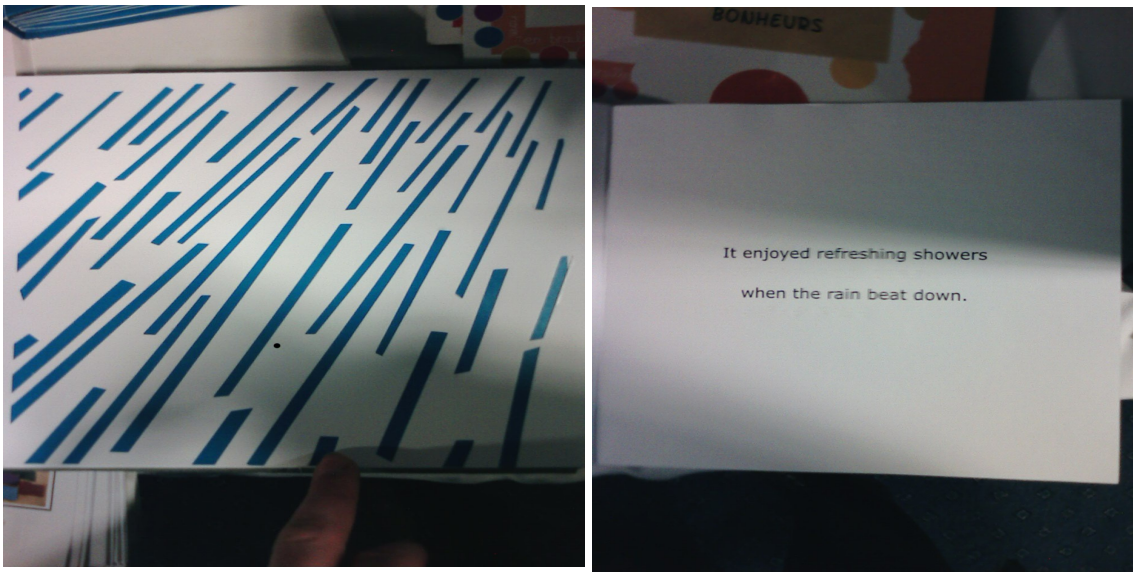




a very special stone,

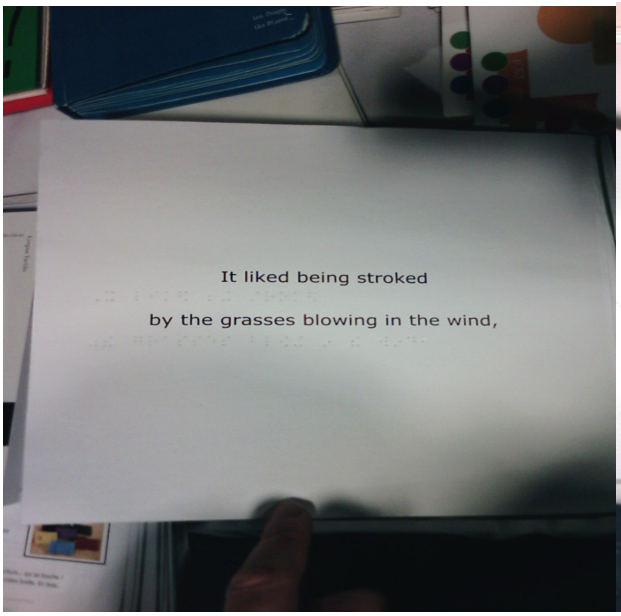
as sensitive as a human being,

It loved to feel the rays of the sun on its back.



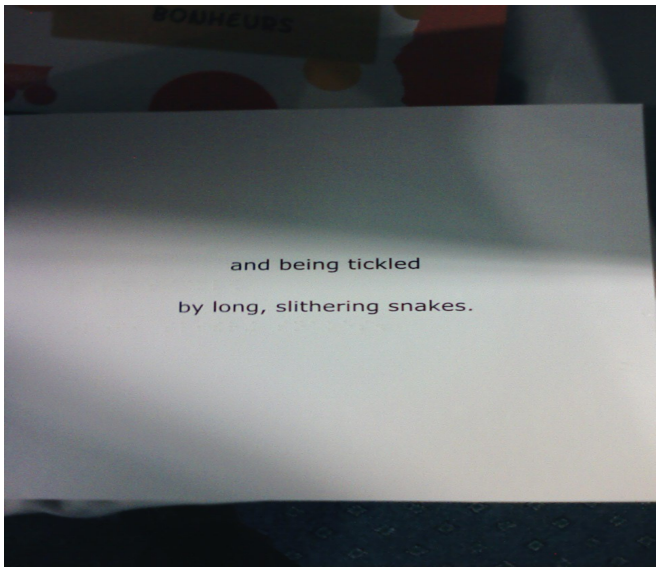
It enjoyed refreshing showers

when the rain beat down.



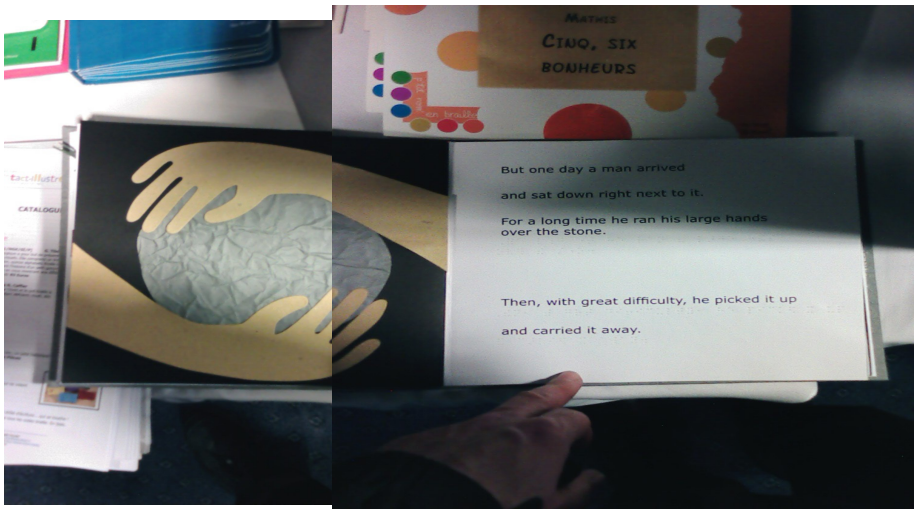
It liked being stroked

by the grasses blowing in the wind,



and being tickled

by long, slithering snakes.


MATHS
CINQ, SIX
BONHEURS
But one day a man arrived
and sat down right next to it.
For a long time he ran his large hands
over the stone.
Then, with great difficulty, he picked it up
and carried it away.

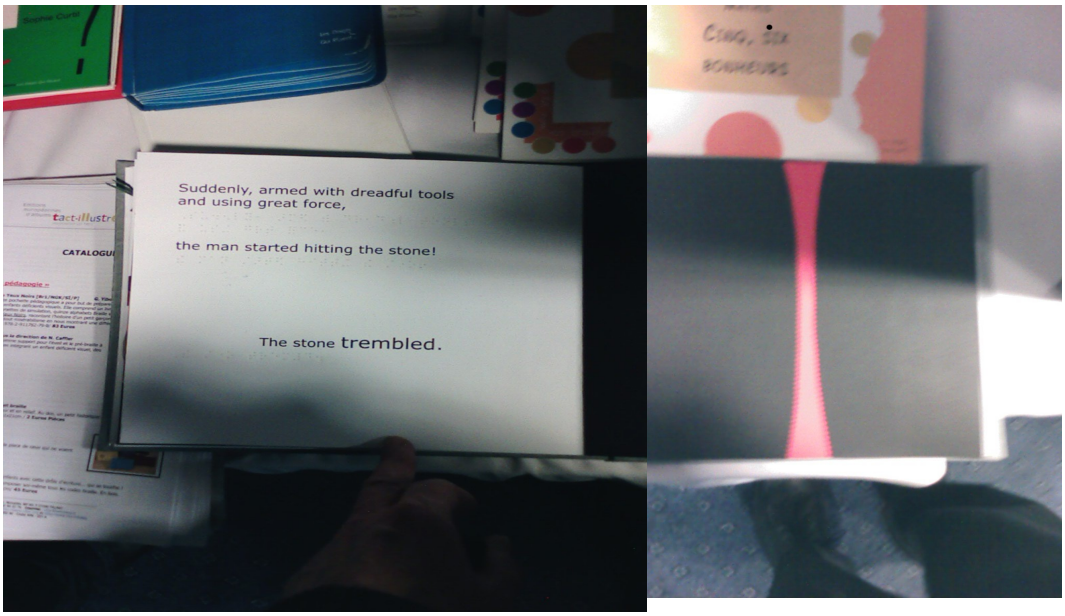
But one day a man arrived

and sat down right next to it.

For a long time he ran his large hands
over the stone.

Then, with great difficulty, he picked it up

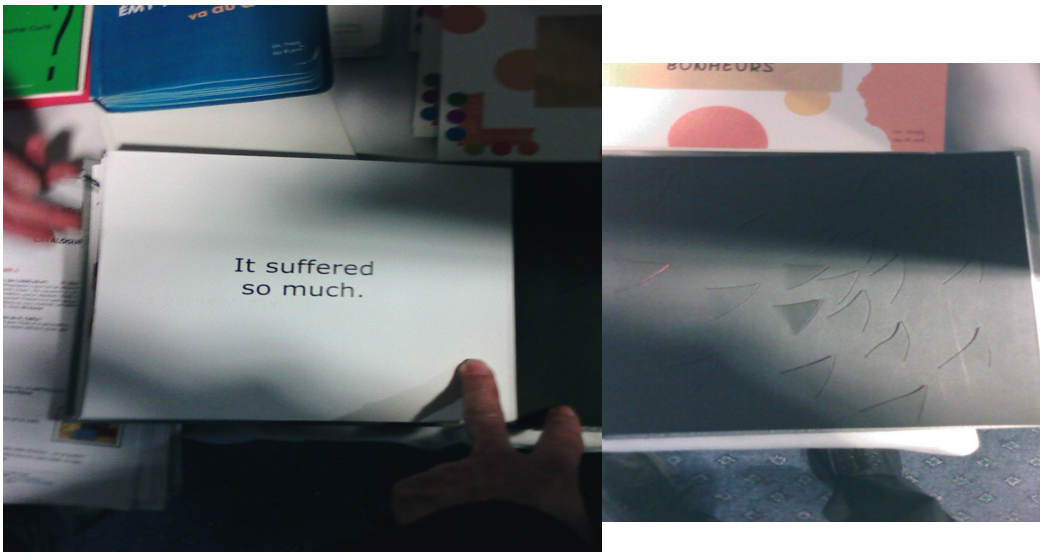
and carried it away.



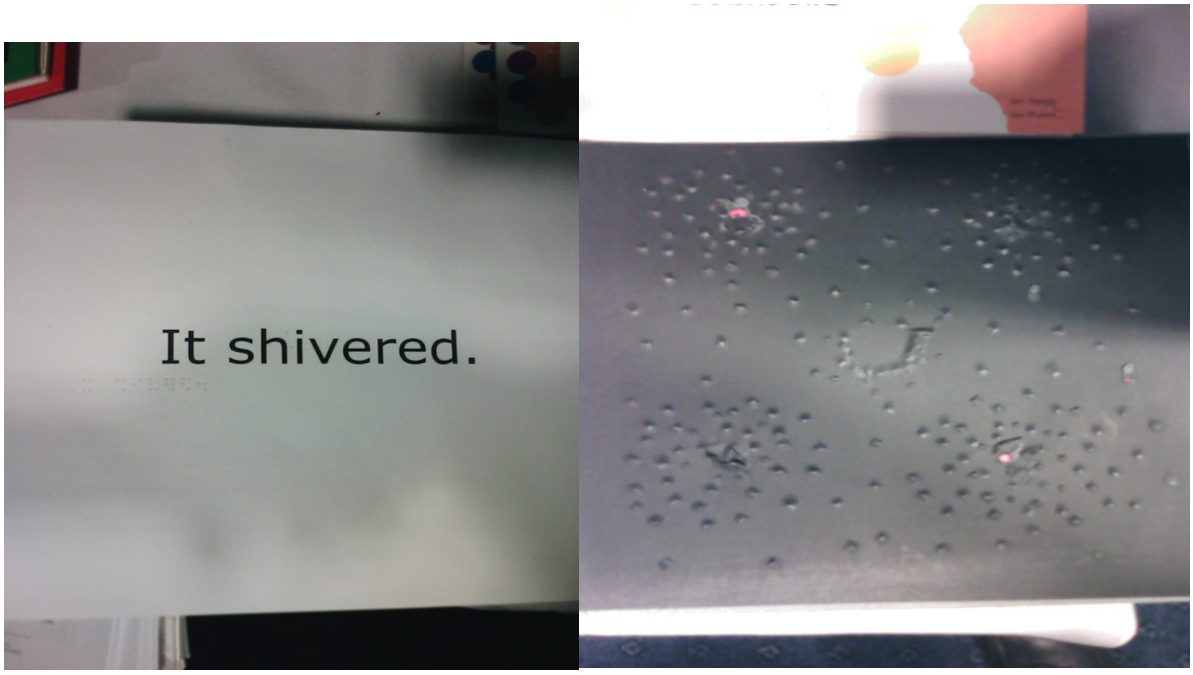
Suddenly, armed with dreadful tools and using great force,

the man started hitting the stone!

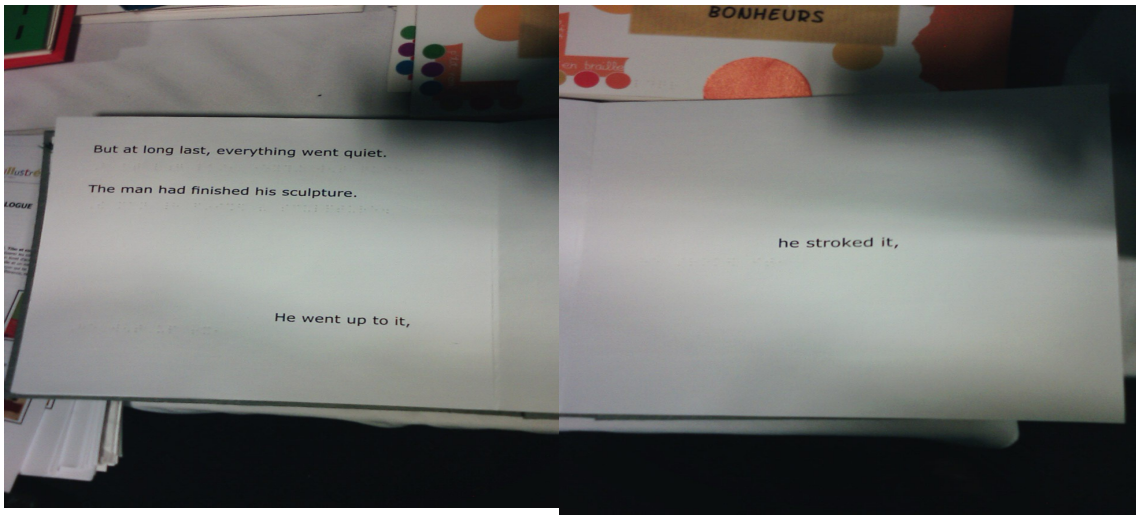
The stone trembled.



It suffered so much.



It shivered.

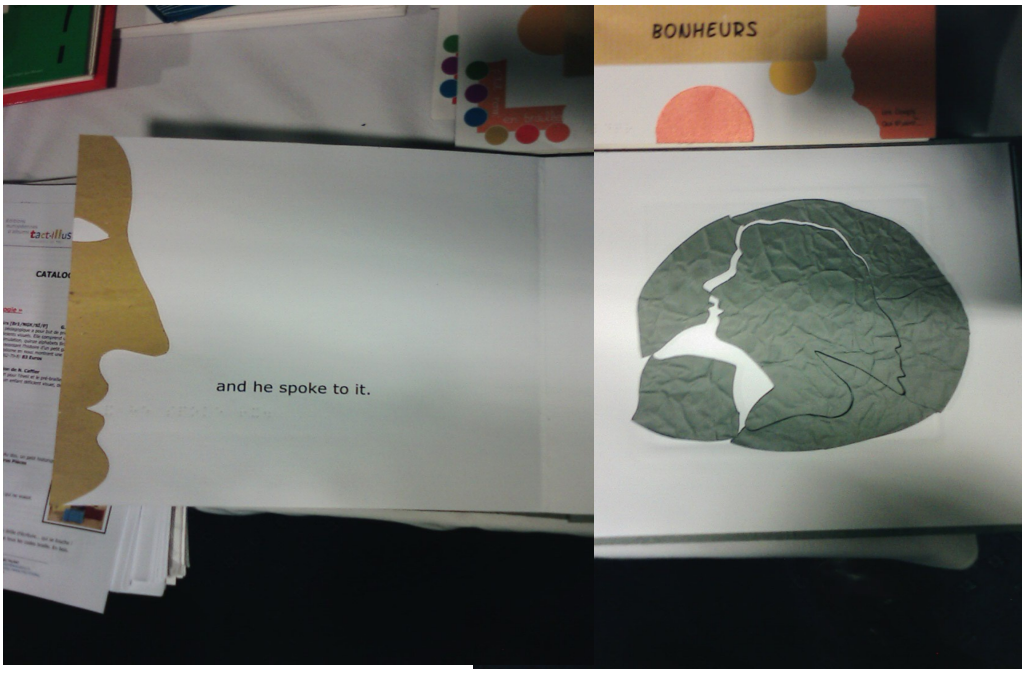


But at long last, everything went quiet.

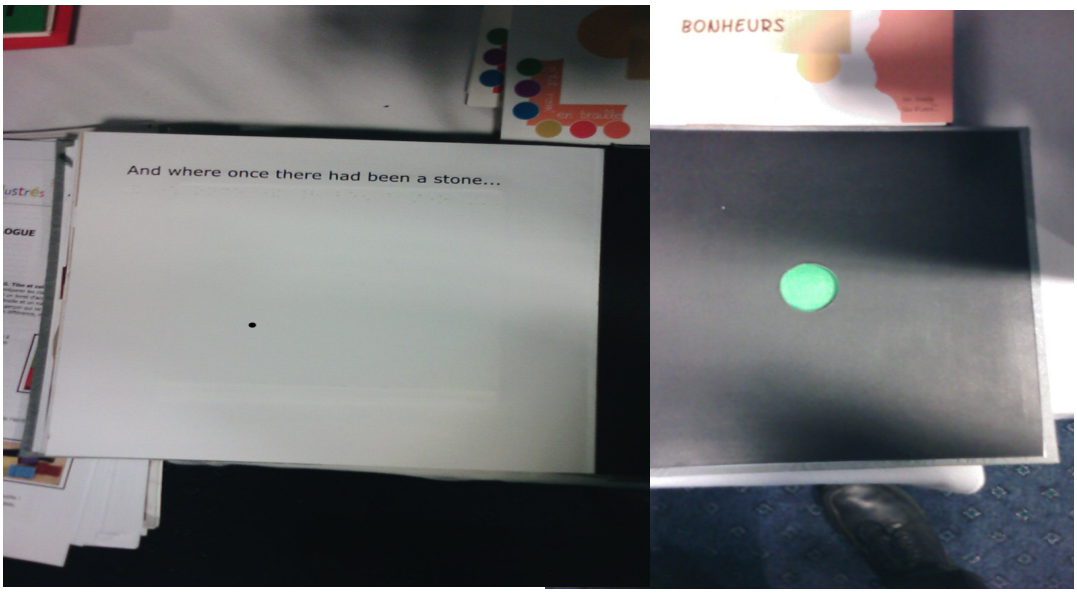
The man had finished his sculpture.

he stroked it,

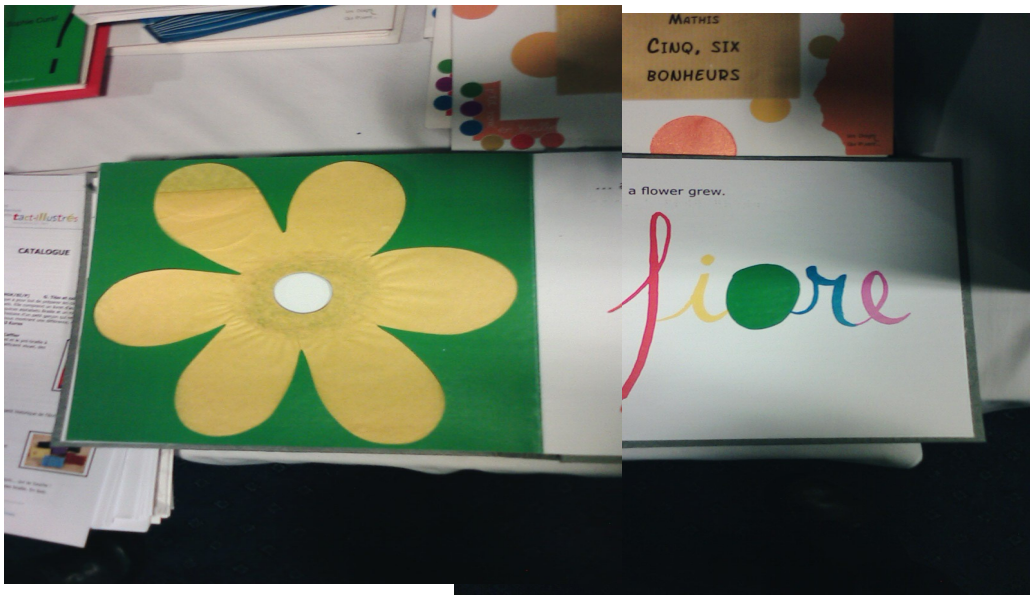
He went up to it,



and he spoke to it.



And where once there had been a stone...



...a flower grew.

ENTRIES FOR THE 'HOW TO WIN A TACTILE BOOK COMPETITION'

Not all the entries are shown here, but my personal favourite was 'THE LITTLE FIR TREE, because, in addition to touch, it contained sensory smells!

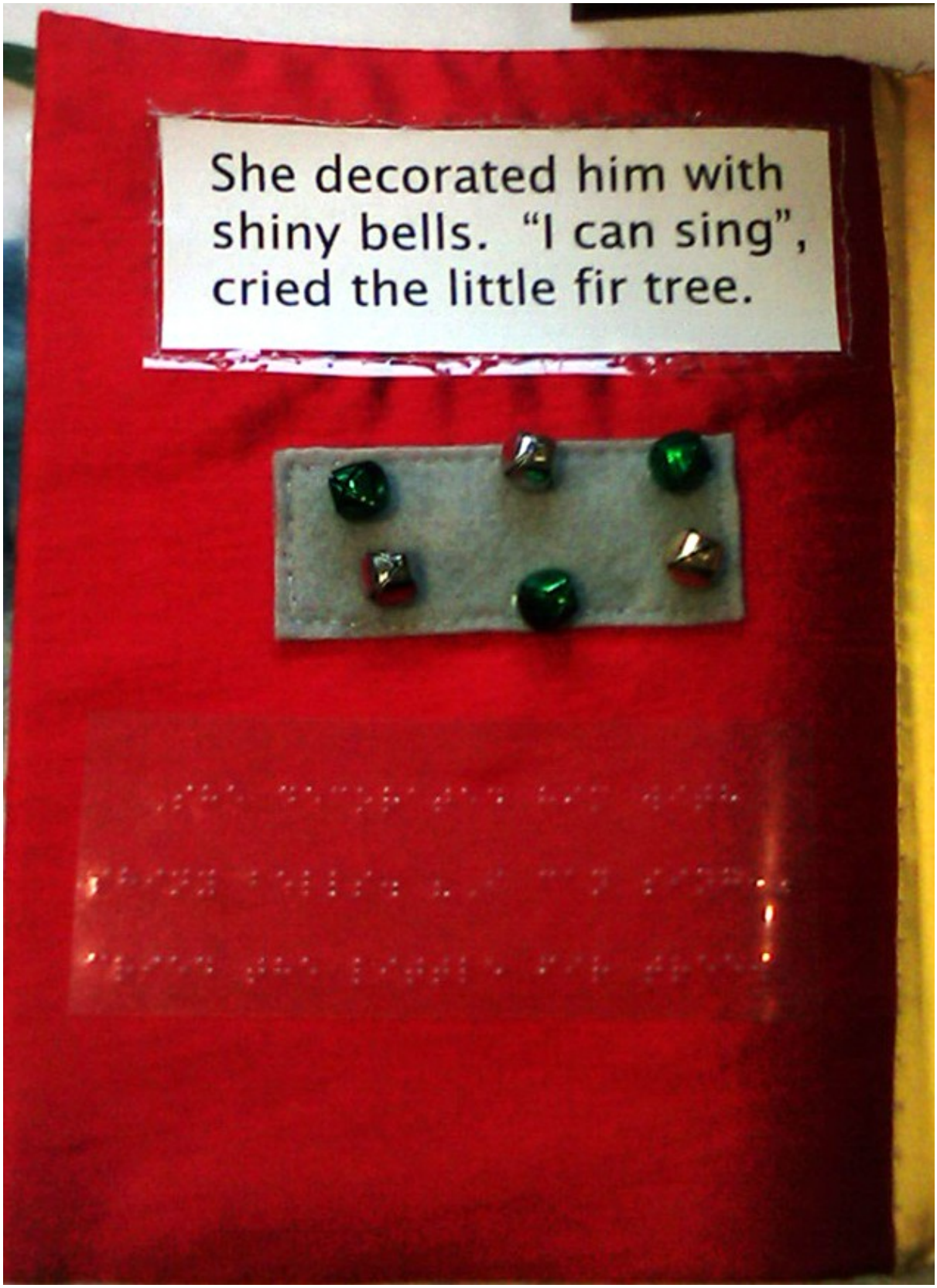
THE LITTLE FIR TREE.

The first page had a sock tube with a herb pouch in it – it smelt lovely – it was attached with a strip of elastic.

A very simple combination of a 'say Ahh' stick and glittery green pipe-cleaners!

One day, late in December, a kind lady came to the field. She took the little tree back to her nice warm house and stood him in a strong pot.

The pot was made of clay, hardened and sewn in through the holes at the top and bottom.


She decorated him with
shiny bells. “I can sing”,
cried the little fir tree.

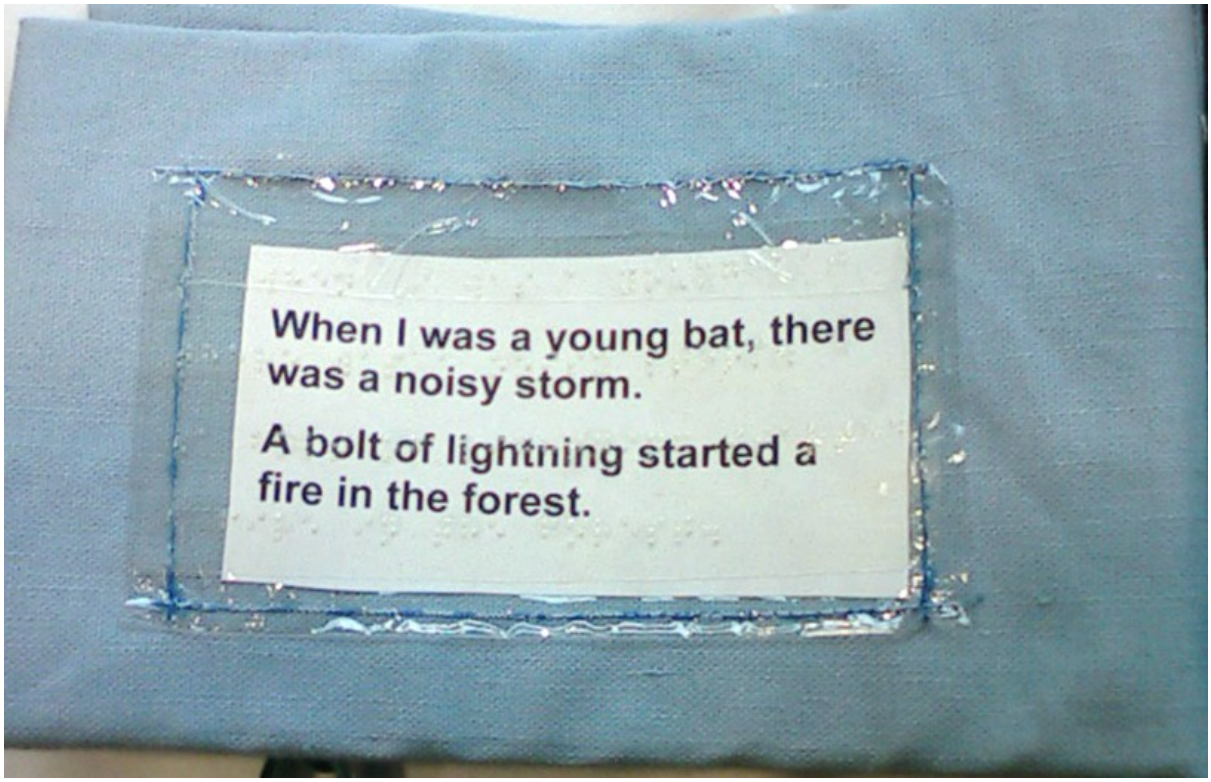
She crowned him with a glowing star. The little fir tree was thrilled.

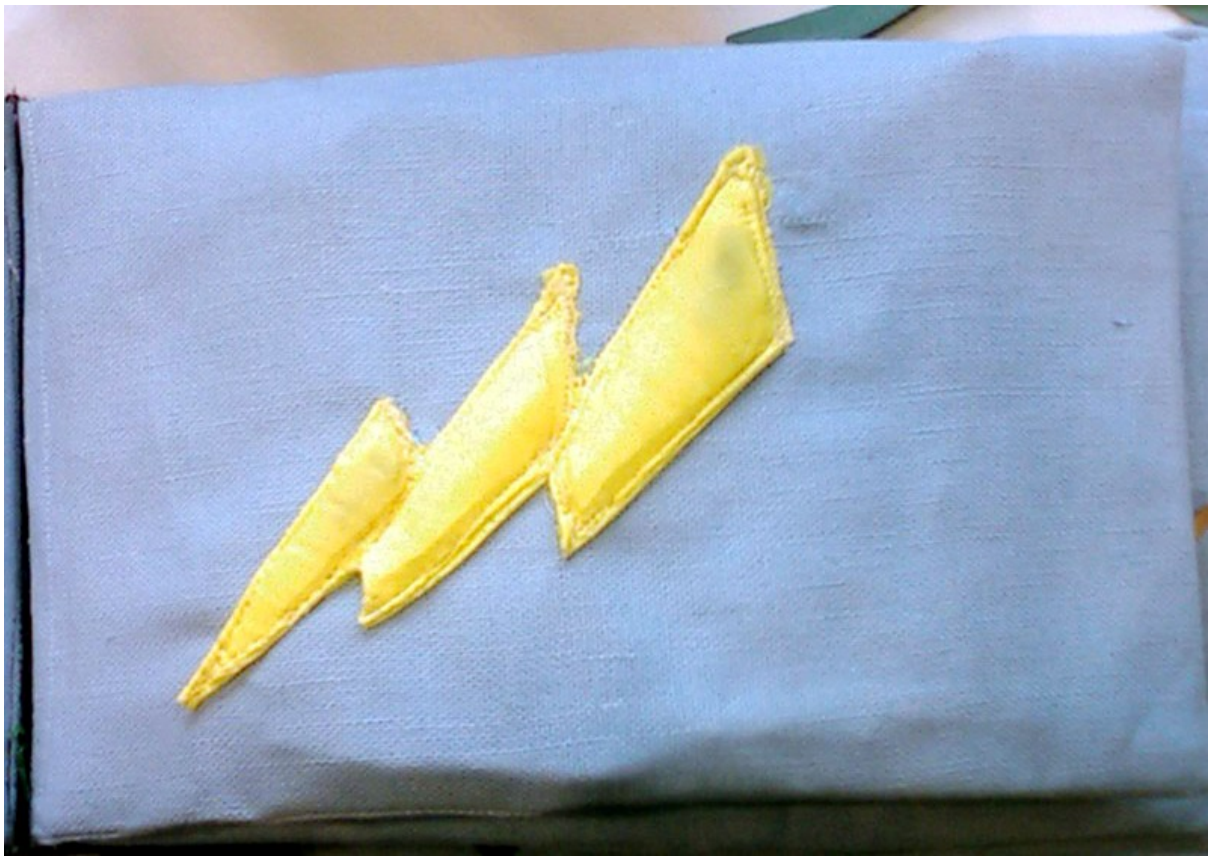
The little Christmas gift was a pouch filled with Cinnamon.

Donated by Amy Palmer

REDECORATING THE FOREST

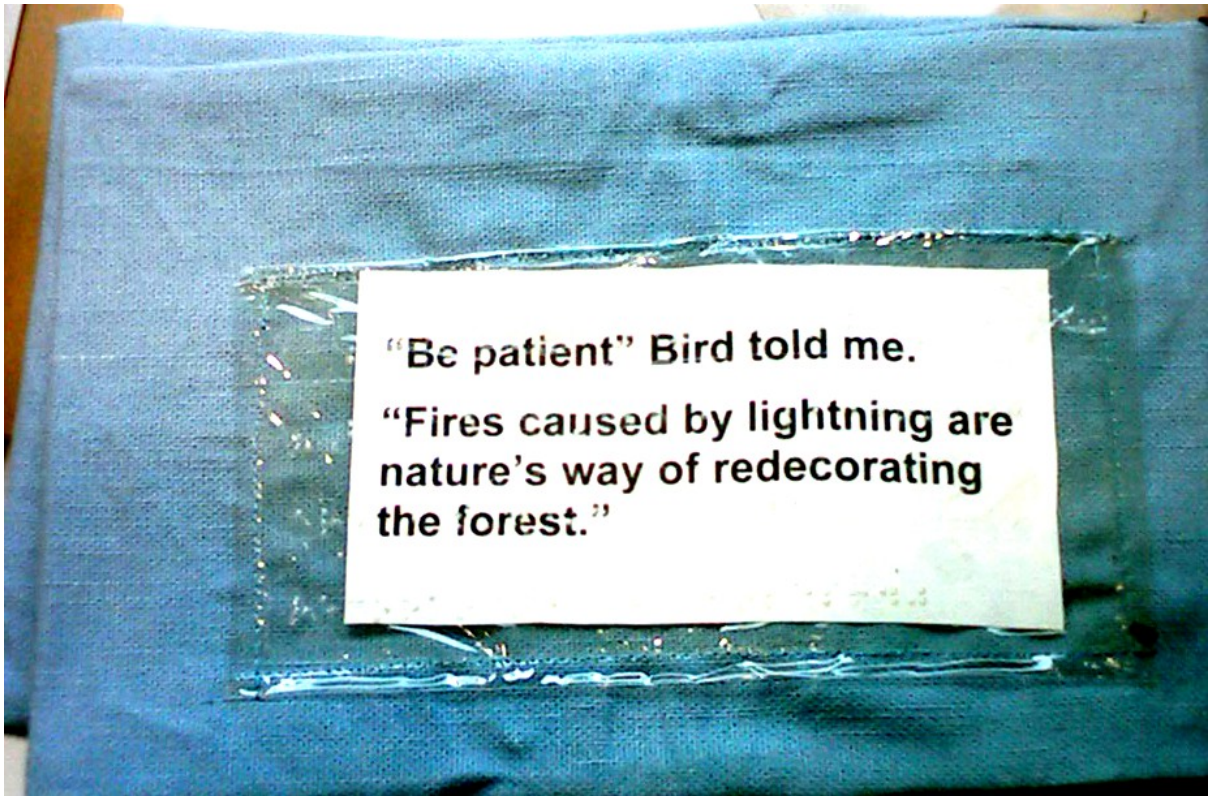
I'm a bat.
I live in the forest.


When I was a young bat, there was a noisy storm.
A bolt of lightning started a fire in the forest.

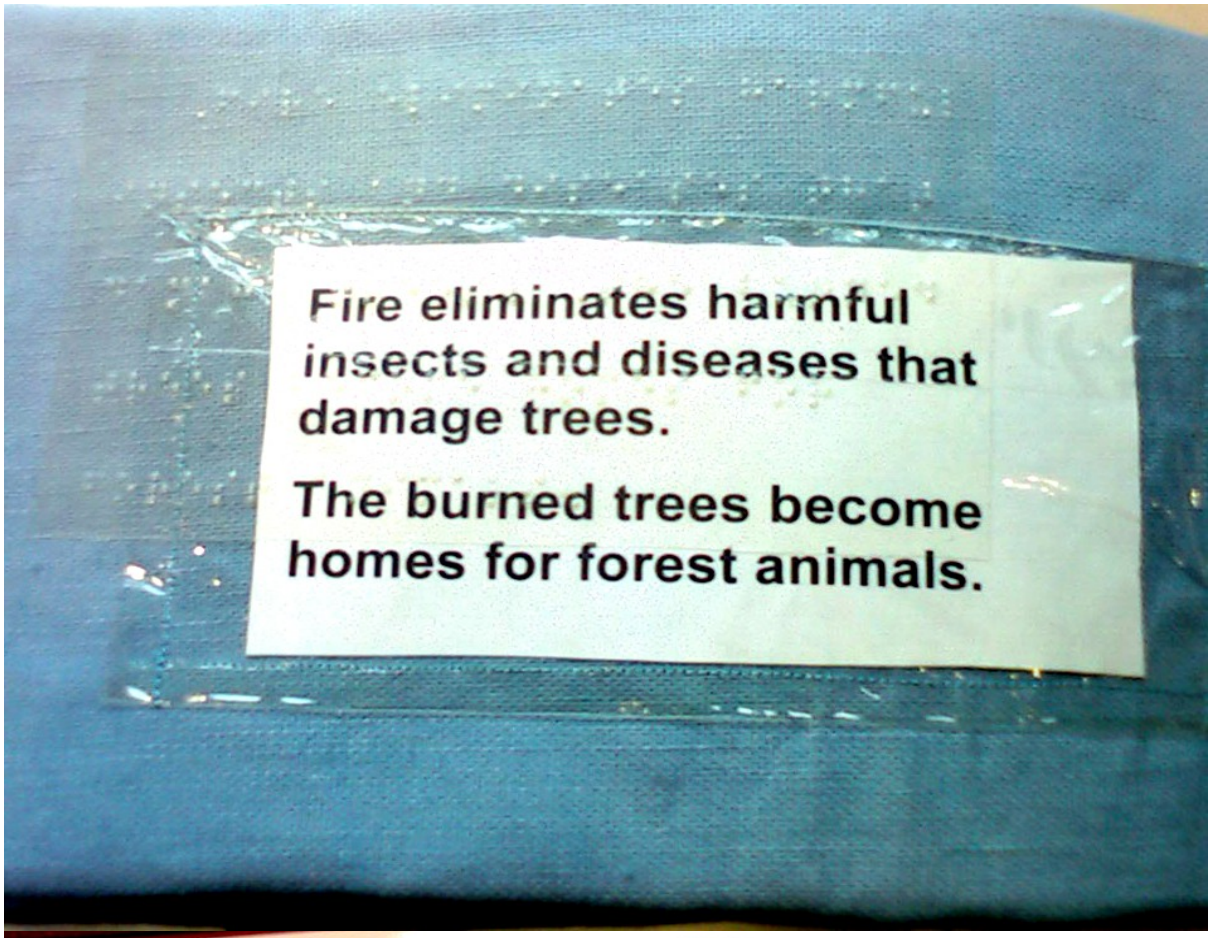


Firefighters arrived in fire engines to put the fire out.
But many trees and plants burned.

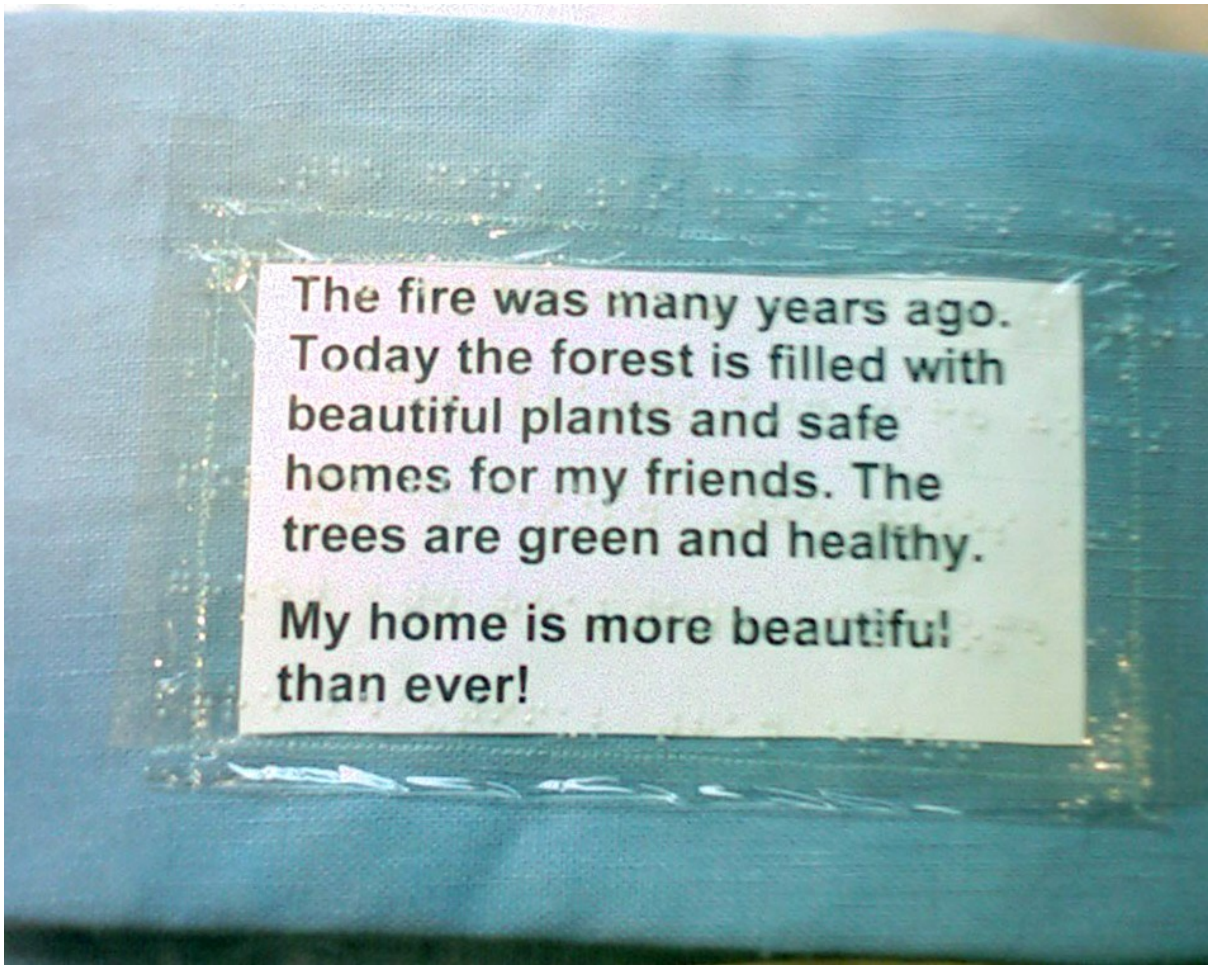
After the fire, I was sad
because the forest was gray
and lifeless.


"Be patient" Bird told me.
"Fires caused by lightning are nature's way of redecorating the forest."

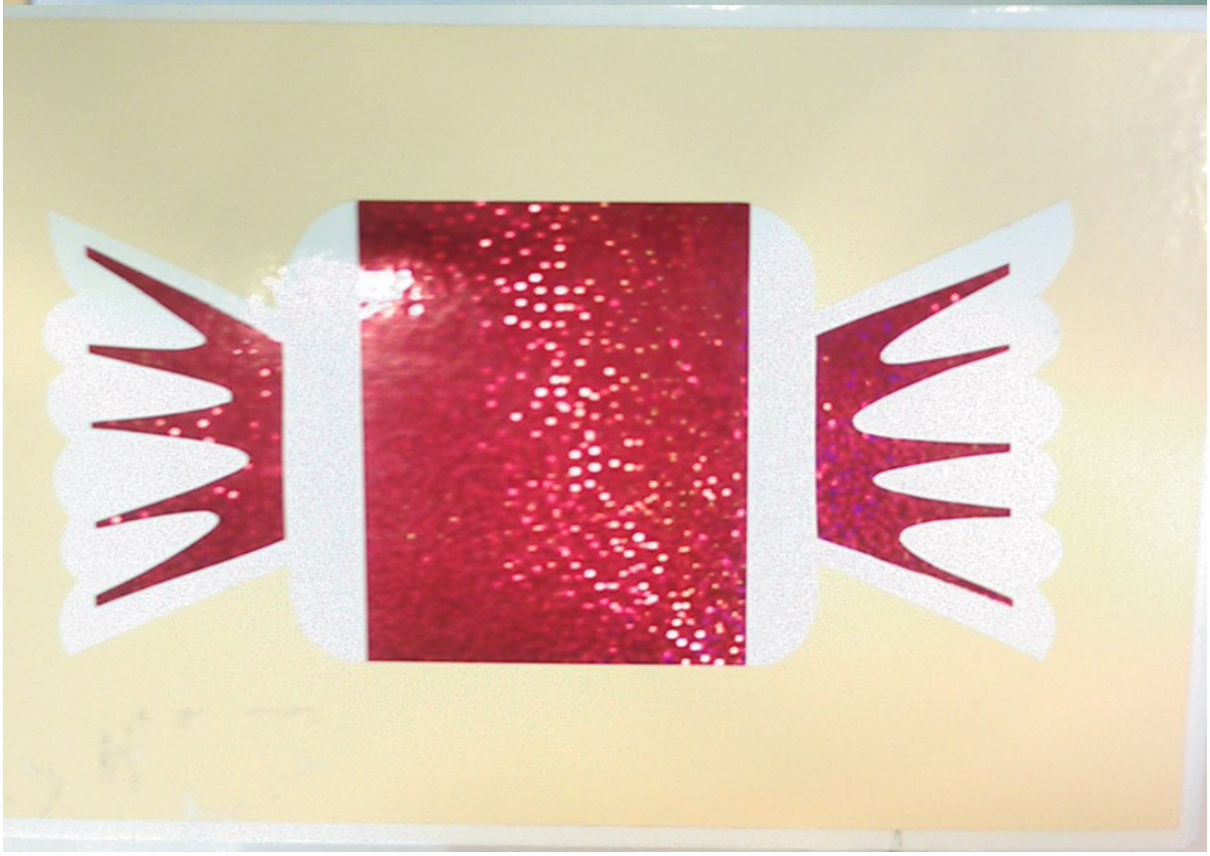
Fire makes the seeds pop out of pine cones. Since there are fewer trees, the sun can nourish the seedlings. The new trees will grow healthy and strong.



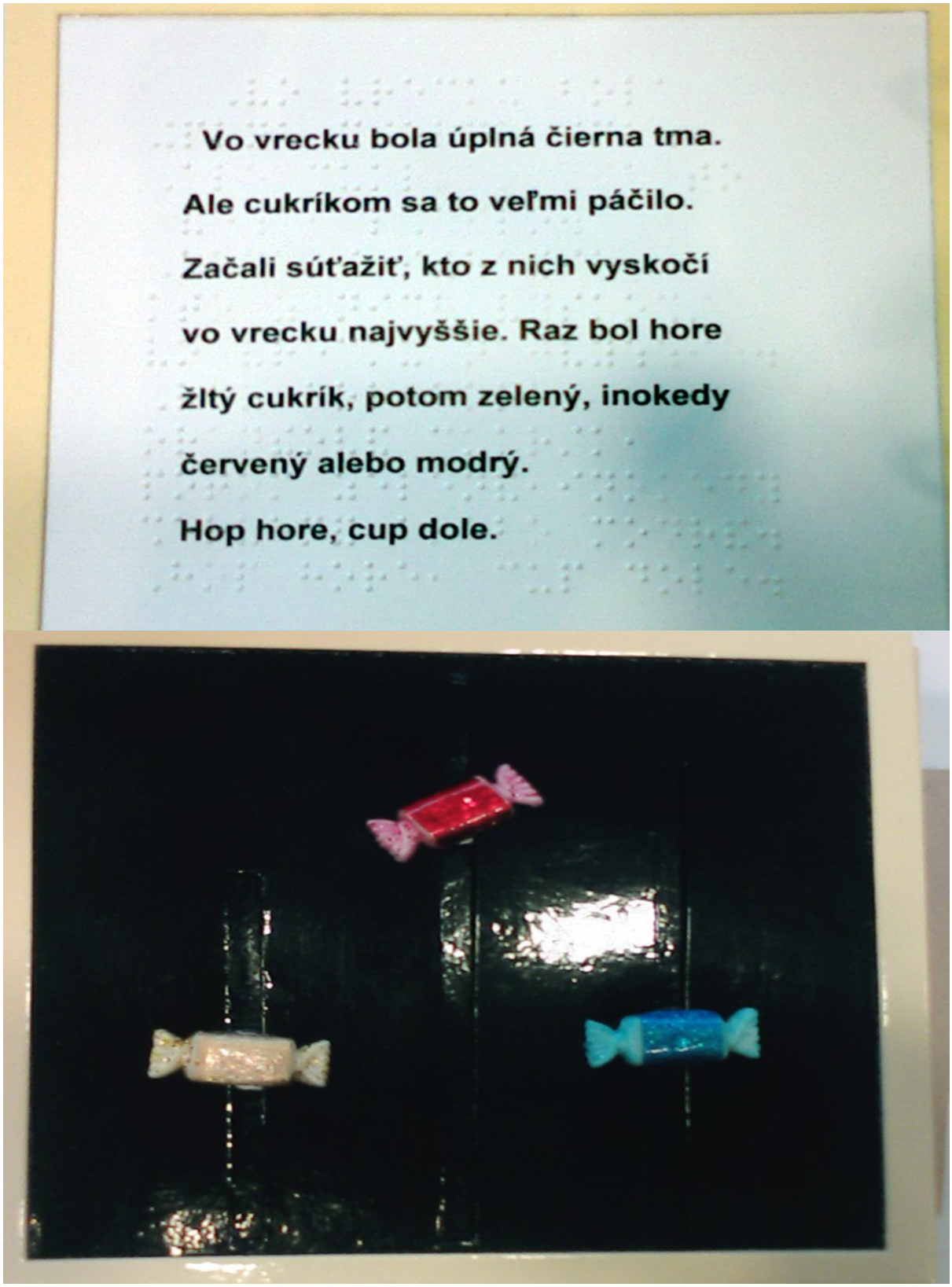
Bug - looks like its an ELC monster bug!


The fire was many years ago. Today the forest is filled with beautiful plants and safe homes for my friends. The trees are green and healthy.
My home is more beautiful than ever!

Cukrík (Cracker)



Babka kúpila Zuzke balíček cukríkov.
Zuzka si hneď jeden rozbalila a zjedla.
Ostatné si vložila do vrecka a utekala
za kamarátmi, ktorí sa hrali na lúke
pri potoku. Ako utekala, cukríky sa
vo vrecku natriasali a poskakovali.


Vo vrecku bola úplná čierna tma.
Ale cukríkom sa to veľmi páčilo.
Začali súťažiť, kto z nich vyskočí
vo vrecku najvyššie. Raz bol hore
žltý cukrík, potom zelený, inokedy
červený alebo modrý.
Hop hore, cup dole.

Lots of little crackers that slide up and down the page.

Edge view of the page in the book; it appeared to be constructed of several layers of card with sponge like material in between each layer.

A cracker walking down the road (road material was sand paper, land was felt and grass strands of dark green wool).

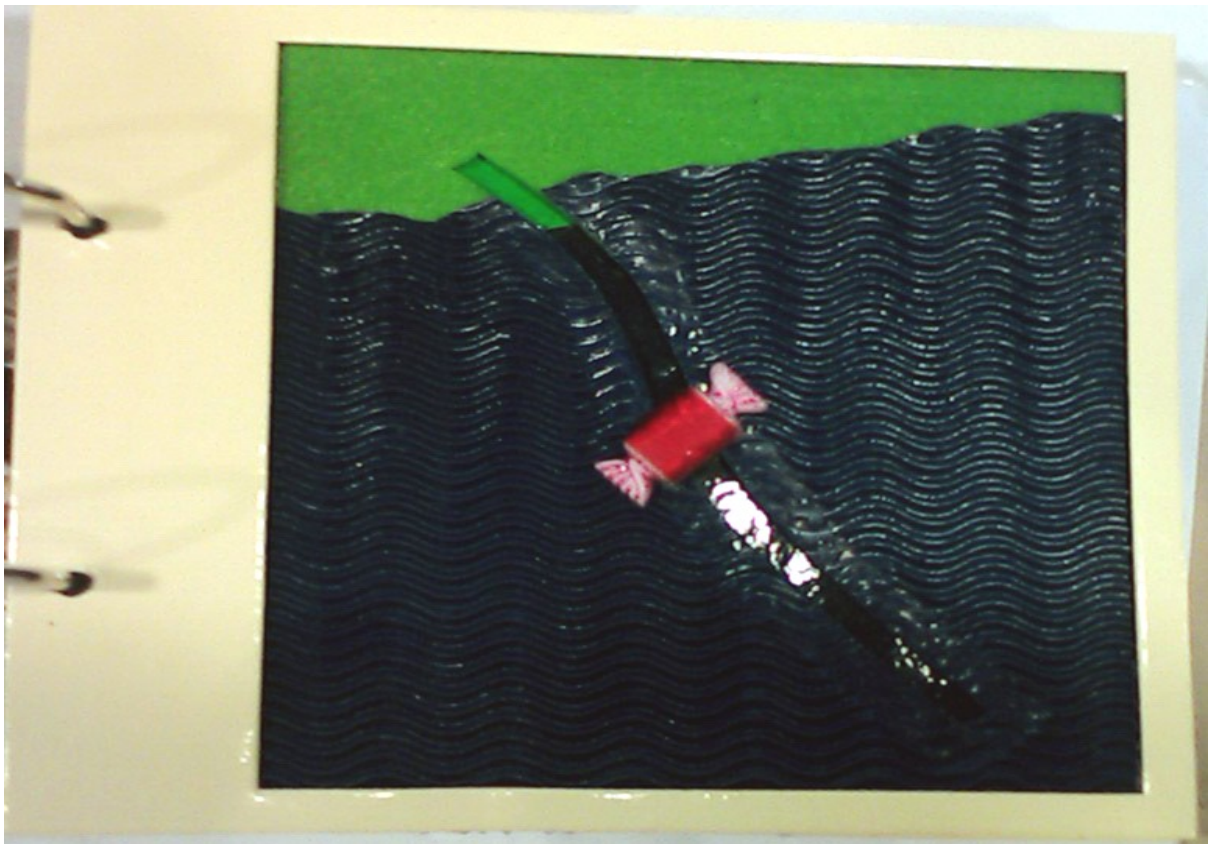
Prikotúľali sa k nemu zvedavé skalky, ktoré ležali na kraji cesty.

„Hééj, ty si kto?“ - volali skalky.

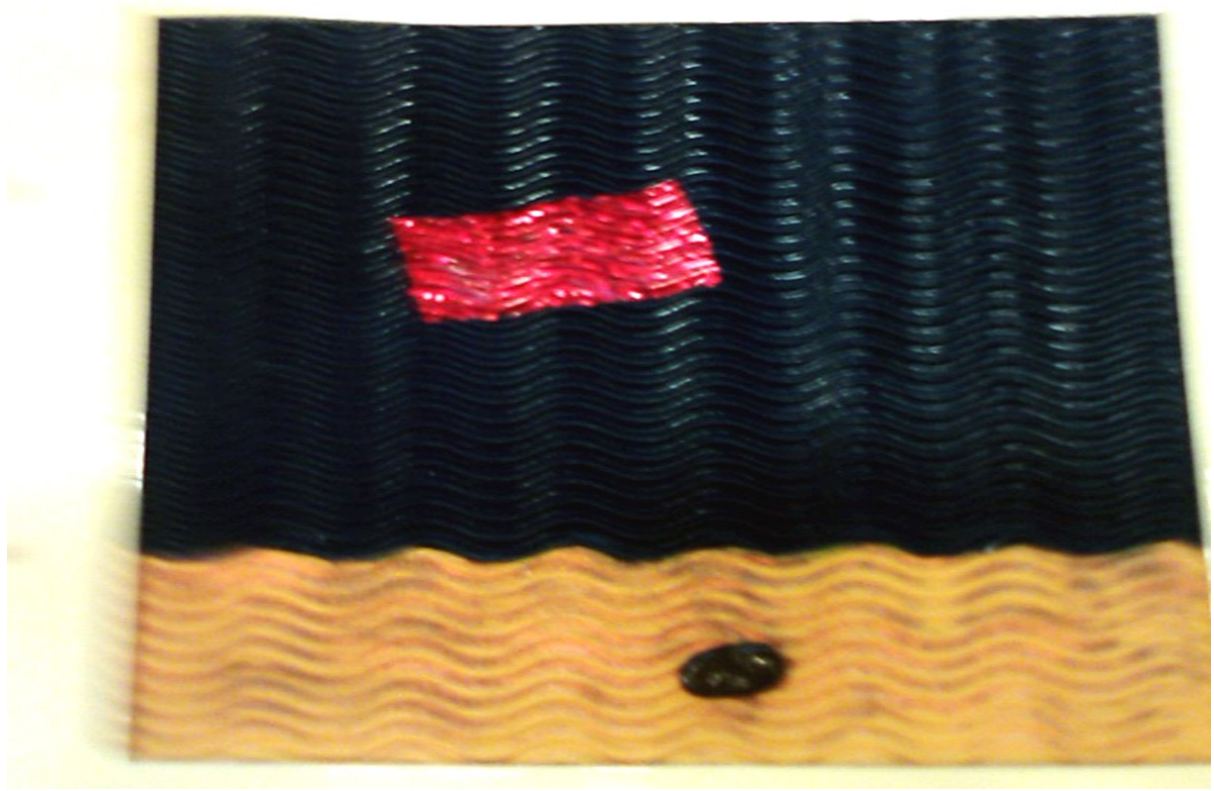
„Ja som cukrík.“

„Poď sa s nami hrať!“

This frog was made of simple card cut-outs with googly eyes with the head on a piece of curled spring so the head could jiggle about.



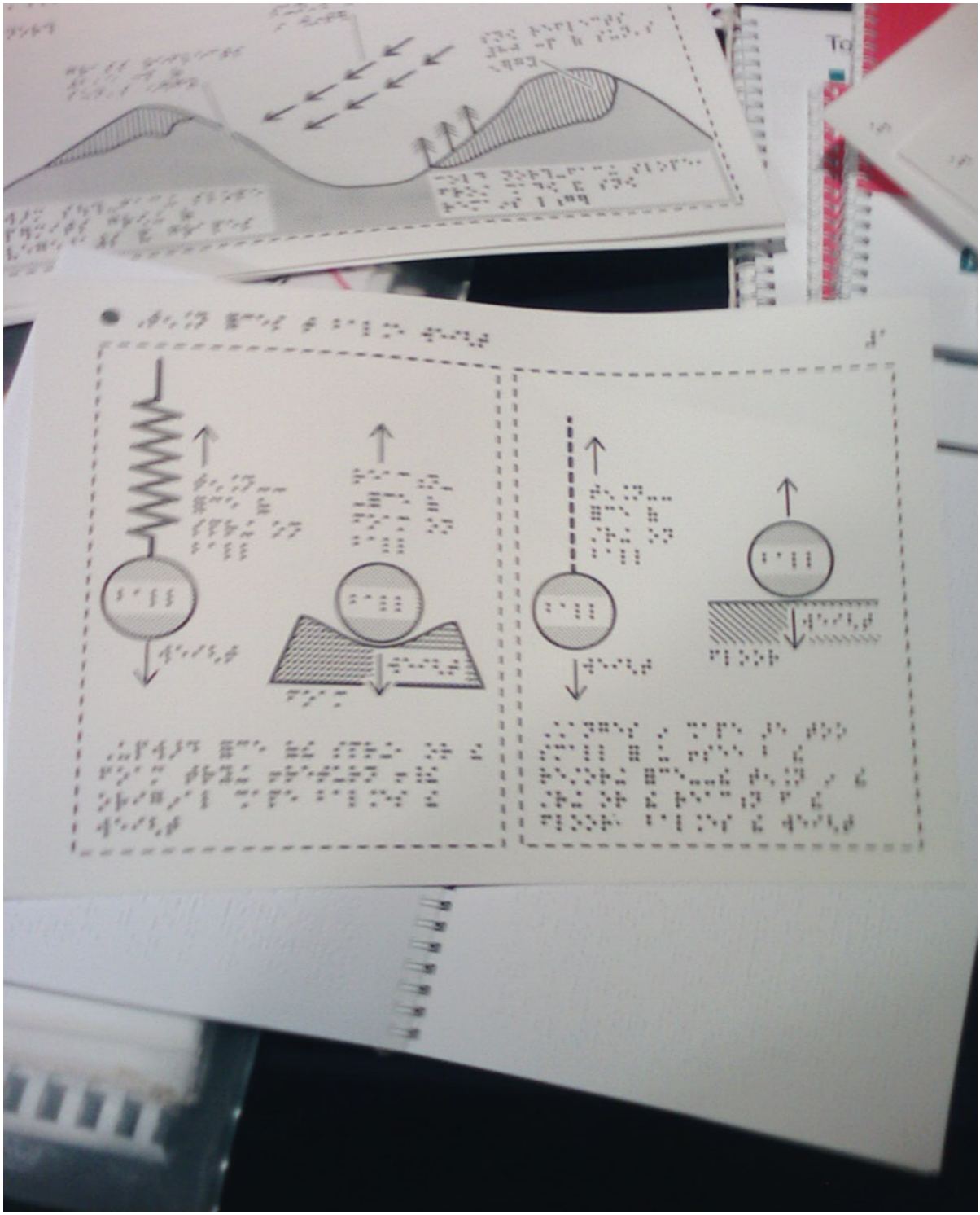
The cracker's mysterious journey continues into water.



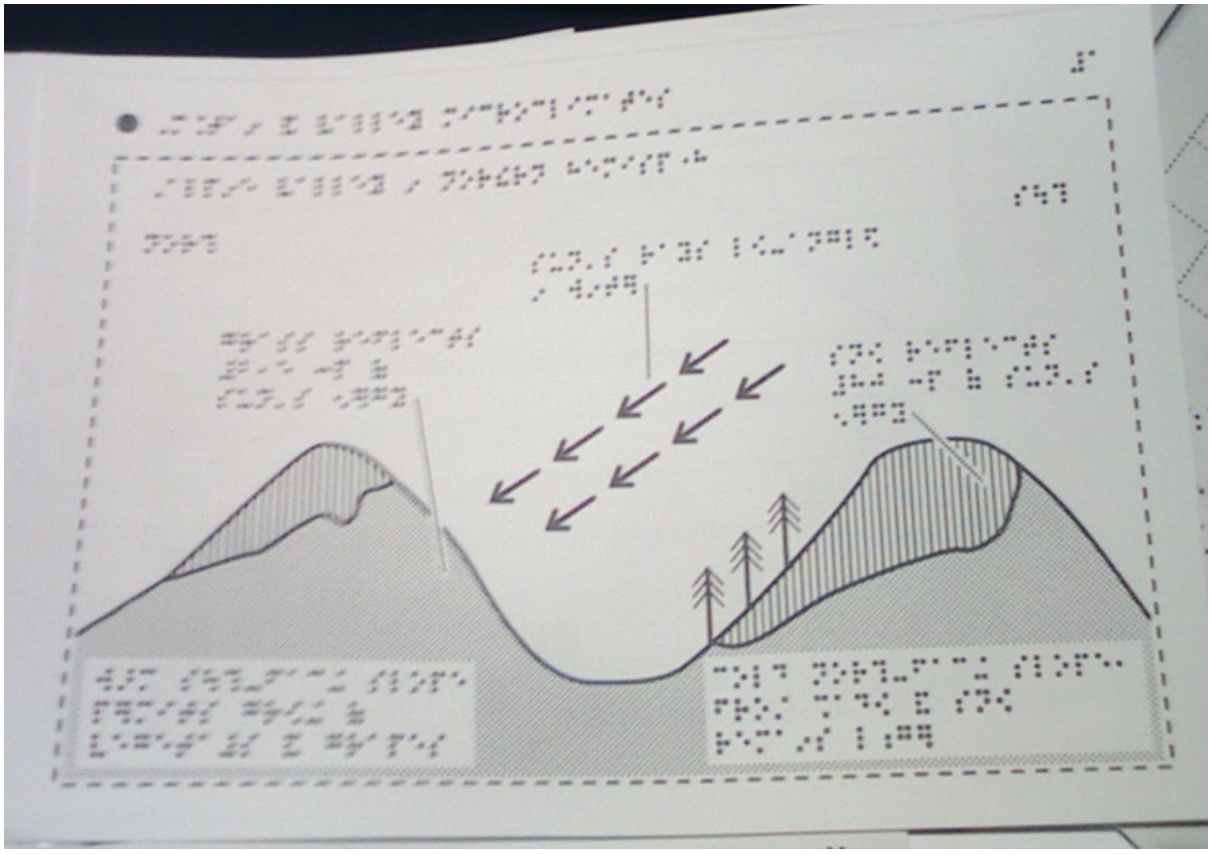
Down, down it goes to the bottom of the (pond/river/sea!)

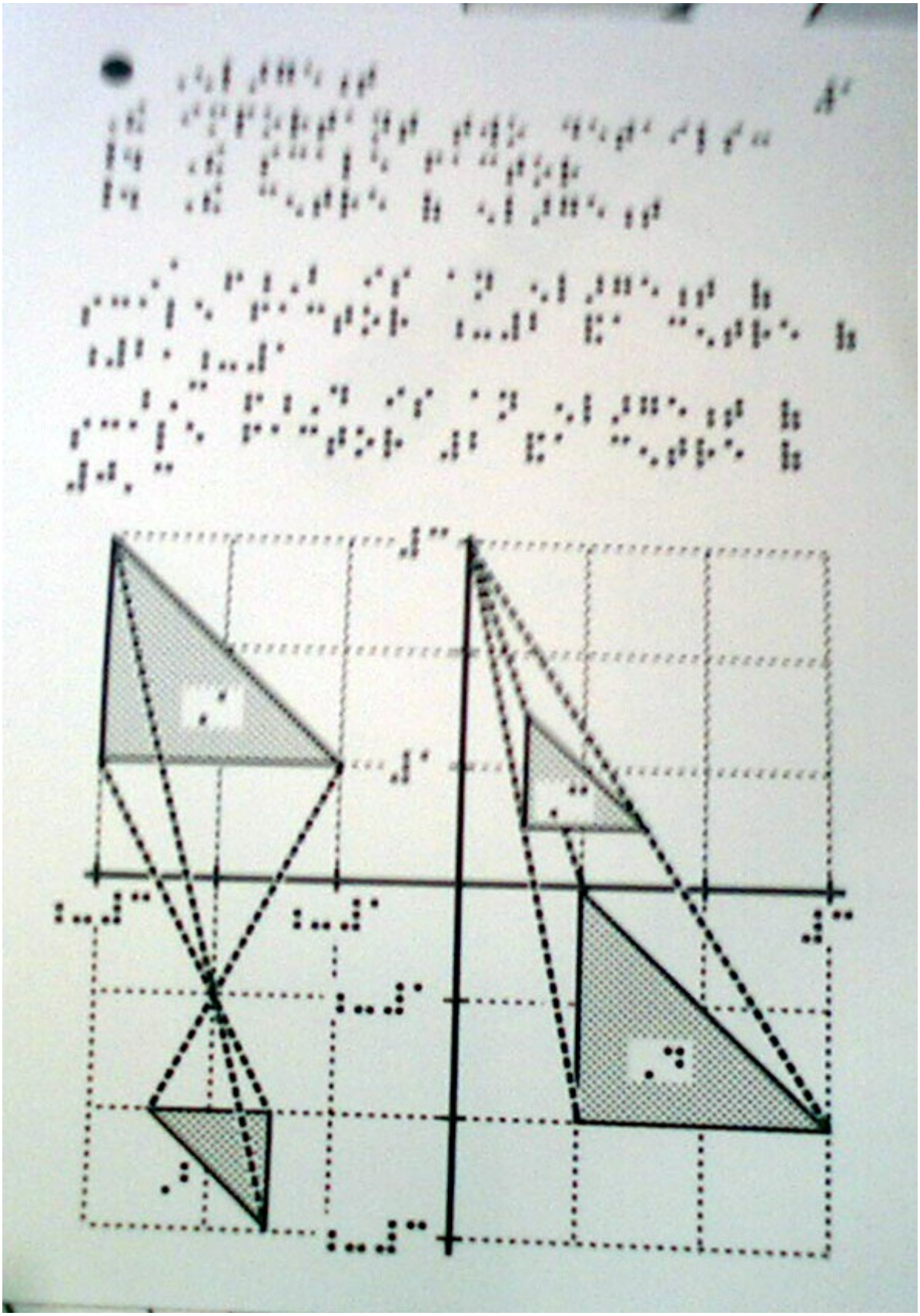
Mysterious fish say hello to a new friend – pollution!

Modified diagrams on the RNIB stand. All produced on B4 swell paper. Notice a large spot on the top left of the diagram – this was

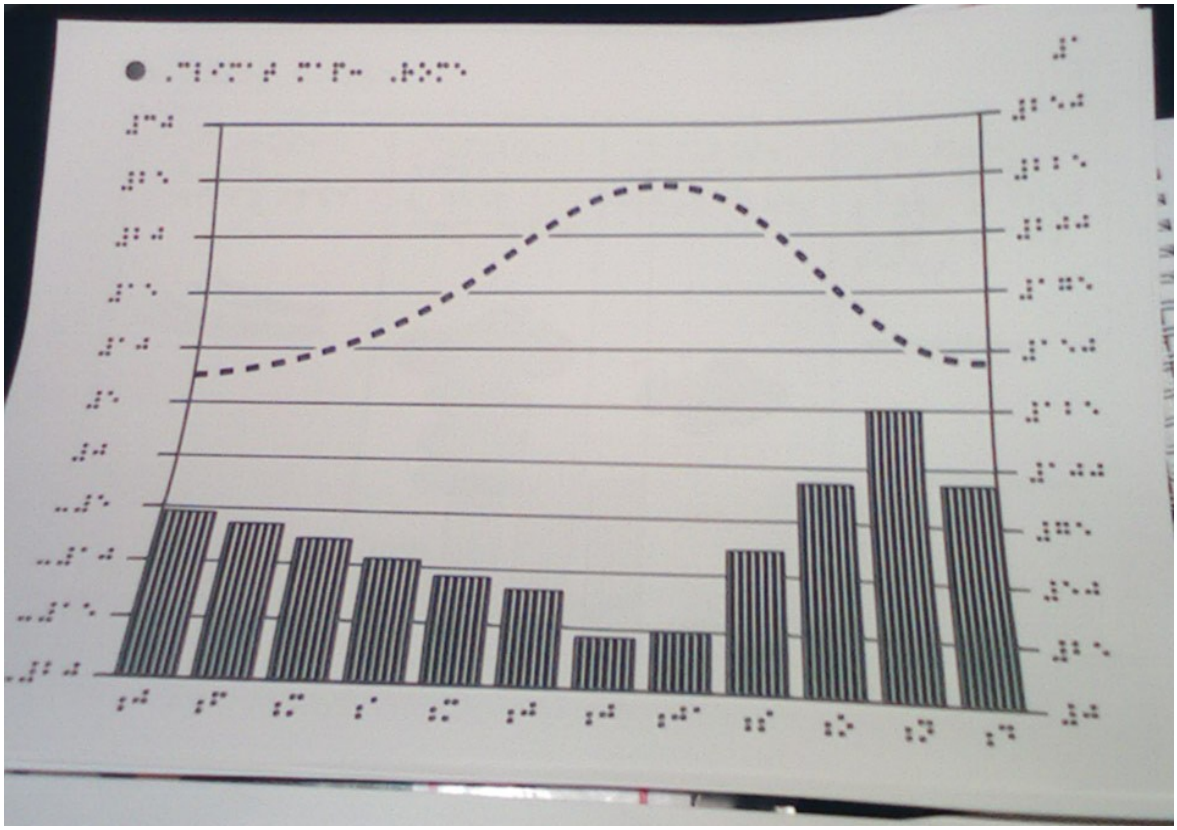


also evidenced on the pages from the London Underground plans and used in addition to page numbering to locate the right way up.





Another RNIB sample on B4 Swell paper showing transformation and enlargement paths.



Another graph on B4 paper – has anyone spotted the spelling/typo error? Answer at the end of document!

Late Exhibitor: Yoshinora TESHIMA Ph.D Research Scientist.
All the tactile models were computer designed using CADCAM software to replicate accurate mathematic models, Earth Globe and Mars Globe!

Interactive Map/Object Exhibitor – TAG it.
This method uses programmable tiny chips that are 'scanned' by an electronic pen that tells the speech recorded associated with the chip what that part of the plan/map/model is. Had chips attached to a large model helicopter, linked in to a speech synthesiser using the 'Daniel' speech engine. A braille board with different flags on were touched to change to a different language.
Website: www.dlinfo.de
Also by the same exhibitor MAX an easy way of producing DAISY related materials.

Finally, I have CD's available from TGA Washington and the last exhibitor referred to above in respect of TAG it.

Farewell to Broad Street!

The answer to the typo error on the RNIB Climat[e] Map – Rome is in the square brackets – it was missing! Only spotted whilst writing this report so I guess I should tell them!

John Blake, VI Technician, Tapton School, SHEFFIELD